# PERCEIVED RELATIONAL RISK AND PERCEIVED SITUATIONAL RISK: SCALE DEVELOPMENT

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# PERCEIVED RELATIONAL RISK AND PERCEIVED SITUATIONAL RISK: SCALE DEVELOPMENT

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To Boris Von Fluffernutter

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# SUMMARY

Interactions with technology are a significant part of daily life, both at home and at work. Understanding how to support successful human-technology interaction is essential for Engineering Psychology. Perceived relational and situational risk are key components to understanding interactions with technologies including adoption, trust, and use. However, perceived risk was only recently separated into these two distinct types: relational and situational. In addition, prior measures of perceived risk focus on hazards, not interactions with technology or automation. The goal of this dissertation was to develop and validate scales of perceived relational risk and perceived situational risk. These scales built on previous work exploring perceived risk and incorporated scale items related to affect, probability, severity, and domains. Evaluations of internal reliability, construct validity, and test-retest reliability were conducted for both scales. The items for both scales had excellent internal reliability, acceptable test-retest reliability, and support for construct validity. After determining the validity of the items, items were selected to create the final scales. These scales allow future researchers to rigorously and accurately study how perceived relational risk and perceived situational risk affect with trust, each other, and technology use.

# CHAPTER 1. INTRODUCTION

## 1.1 Motivation

As automation and technology increase in our daily lives, it is crucial to understand how to support the appropriate use of technologies and understand the components that impact human-automation interaction. Trust is a key component of this interaction. However, trust is a complicated construct with a variety of factors that influence it; so, too, is the impact trust has on our interactions (Hoff & Bashir, 2015; Lee & See, 2004; Parasuraman & Riley, 1997). Risk is one of these key factors that influences both trust and interactions with the technology (Stuck & Walker, 2020).

As risk is a key factor for trust, it is essential to incorporate risk and measures of perceived risk into studies of trust (Stuck & Walker, 2020). Perceived risk in the trust relationship has been differentiated into two different constructs: perceived *situational* risk and perceived *relational* risk (Stuck, Tomlinson, & Walker, 2020). Measurements exist for perceived risk of hazards (Jacoby & Kaplan, 1972; Slovic, 1987; Wilson, Zwickle, & Walpole, 2019), as well as risk-taking behaviors (Weber & Blais, 2006; Weber, Blais, & Betz, 2002). However, there are no scales developed to measure perceived risk within the context of individual interactions with a specific technology or a specific task. It is unclear if the same measures for understanding perceived risk of hazards will also be valid for contexts exploring perceived risk with technologies. In addition, limited construct validation and exploration of test-retest reliability has been conducted for those scales.

To appropriately study and understand trust, and interactions with technologies, it is essential to measure both perceived relational and situational risk. However, this cannot be done if there are no validated scales to measure these constructs. This dissertation addressed those gaps through the development and validation of scales for perceived relational risk and perceived situational risk.

## 1.2 Goals

The primary goals of this dissertation were to extend previous work focused on measuring general perceived risk in order to develop and validate scales for both perceived relational risk and perceived situational risk.

**Goal 1:** Develop and validate a scale of perceived relational risk.

The perceived relational risk scale developed will provide deeper insights into how individuals perceive risk with a **specific technology**. This scale will allow us to measure what aspect of risk has the greatest influence on trust. For example: Is it purely the affective component?; Is it that a severe risk is unlikely to happen or a low-risk that will happen frequently?; For those risks, is financial or physical harm that is the primary concern? Understanding these individual components will not only enable us to better understand the relationship between perceived relational risk and trust, but it will also allow deeper insights for mitigating the risks for users. Through deeper insight into users' risk perceptions, technology developers can better address these concerns. For example, if a designer or developer understands that the perceived risk is focused on social risk rather than financial risk, they know to look at ways of mitigating social risk instead of focusing on making the technology cheaper or less expensive to maintain.

**Goal 2:** Develop and validate a scale of perceived situational risk.

In addition to the development of a perceived relational risk scale, the creation of a perceived situational risk scale supports a more in-depth understanding of how individuals evaluate risk in a **specific situation**. By understanding how people evaluate risk in tasks and situations, one can understand how much trust is needed for people to take a risk and rely on a technology. This will further our knowledge for better trust calibration, and ensure when trust is necessary for technology use. In addition, this work identified which domains of risk which impact trust, and measured it in conjunction with perceived situational risk. This combination, which had not been extensively studied, will allow researchers/technologists/product designers to compare results between evaluations, and will build a larger foundation of differences in trust due to risk domain-specific factors.

## 1.3 Summary of Study

These scales were developed and evaluated for validity in one overarching study. First, items for each of the perceived relational and situational risk scales were developed. These items covered a variety of components which could impact risk perception: affect, perceived severity with weighted probability, and domain.

The study was administered online study via Qualtrics. Through Mechanical Turk 201 participants were recruited and completed the survey. After removal for attention check failures, 177 participants were included in the final analysis. Each participant completed the perceived relational risk scale for one low-risk technology (calculator) and one high-risk technology (electronic cigarette). For perceived situational risk, participants were asked about one low-risk task/situation (listening to music) and one high-risk task/situation (drinking until blackout drunk). Participants also completed a variety of other scales about the technologies and tasks including: a general measure of perceived risk scale (for comparison and construct validity), positive and negative affect schedule (PANAS), participant's self-proposed list of expected negative outcomes, trust in the technologies (Jian, Bisantz, Drury, & Llinas, 1996), and answered questions about past experience as well as potential intent to use the technology (relational) or complete a task (situational) in the future. In addition, participants answered general demographic questions, the ten-item personality inventory, the domain specific risk-taking scale (DOSPERT), and propensity to trust (Evans & Revelle, 2008). After completing demographics and other scales, participants were randomly assigned to repeat the perceived relational risk scale for one technology and the perceived situational risk scale for one task/situation.

The perceived relational risk and situational risk scales were evaluated to assess the internal validity, test-retest reliability, and construct validity of the items. The items for both scales were found to have excellent internal validity and acceptable test-retest reliability. Construct validity was confirmed through both the correlations with the General Perceived Risk measure (Wilson, Zwickle, & Walpole, 2019)and through validating that the scale was able to appropriately capture differences in the low-risk versus high-risk manipulation.

After the evaluation of the scale items showed that the items were reliable and valid, a final set of items were determined for Perceived Relational Risk and Perceived Situational Risk scales. Besides these full items sets, a smaller subset of items were selected for a shorter scale for practitioners who may have time and resource constraints.

The research community will now be able to thoroughly investigate the nuanced impact of perceived relational and situational risk on trust, as well as their relationship to technology adoption and usage, through more rigorous methods than previously available. Since this scale is standardized and applicable to many risk contexts, future studies should use this scale to compare results in order to thoroughly understand the impact of design choices on risk and trust.

The relationship of perceived risk with trust can now be further understood and explicated. For example, by developing scales to measure these constructs separately, we can better understand the interaction of the risk of the environment and the risk of the technology on reliance behavior.

# CHAPTER 2. BACKGROUND

Technology and automation are increasing in our everyday lives: from smart home assistants to automated features in our cars. A key part of both successful integration and use of these technologies is trust. Trust is a complicated construct that is also influenced by varying facets; and *risk* is a key part of trust that has been understudied (Stuck & Walker, 2020). Perceived *relational* risk and perceived *situational* risk have been identified as key aspects of risk that interact with trust (Stuck & Walker, 2020). However, there are no validated scales that exist for these two constructs for their relationship with trust to be explored and supported. The goal of this dissertation is to develop and validate scales of perceived relational risk and perceived situational risk that include components of risk identified from prior perceived risk work: affect, perceived probability, perceived severity, and the domain of the risk.

## 2.1 Trust in Automation

To understand how risk impacts trust, it is first critical to have an understanding of trust as a psychological construct. A widely accepted definition of trust (relevant for both human-human and human-automation trust) is: "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (Mayer, Davis, & Schoorman, 1995, p. 712). For example, this would be an individual being willing to be vulnerable to a medication reminder technology with the expectation that the reminder will correctly and timely remind them when they need to take their medication. They are being vulnerable because not taking required medications could have negative physical or psychological outcomes.

Trust is essential to understand within the human-automation/human-technology context because it is a key component of relying and using that technology. For example, trust impacts both adoption and use of systems (Parasuraman & Riley, 1997). Over-trust or distrust can also result in inappropriate use of a system (Lee & See, 2004). Using automation often requires users to be vulnerable (e.g., riding in an automated car could result in death or injury), therefore understanding what it takes for the user to be willing exhibit trust is crucial. This is especially essential in the context of risk. When risk and vulnerability are present, trust is required for a user to rely and use a system (Stuck & Walker, 2020).

## 2.2 Trust and Risk Model

As discussed, risk is a factor that has been highlighted as a crucial part of trust and refining the construct of trust (Stuck & Walker, 2020). This has been supported across human-human trust through both theory (Chiles & McMackin, 1996; Giffin, 1967; Mayer, Davis, & Schoorman, 1995; Rempel, Holmes, & Zanna, 1985), and studies that demonstrate that perceived relational risk has a reciprocal relationship with subjective trust (Delbufalo, 2015; Jin, Line, & Merkebu, 2016; Nicolaou, Ibrahim, & van Heck, 2006; Nicolaou, Ibrahim, & Van Heck, 2013; Terpstra, 2011; Tortosa-Edo, López-Navarro, Llorens-Monzonís, & Rodríguez-Artola, 2014; Vainio, Paloniemi, & Varho, 2017). These findings are also supported in the human-automation context. For example, there have also been studies done in human-automation trust that found that perceived relational risk is negatively related to trust (Aldas-Manzano, Ruiz-Mafe, Sanz-Blas, & Lassala-Navarré, 2011; Burda & Teuteberg, 2014; Cockrill, Goode, & Beetles, 2009; Damghanian, Zarei, & Siahsarani Kojuri, 2016; Hsin Chang & Wen Chen, 2008; Mohd Suki & Mohd Suki, 2017; Pappas, 2016; Rajaonah, Tricot, Anceaux, & Millot, 2008; Slade, Dwivedi, Piercy, & Williams, 2015; Wang & Lin, 2017). In addition, experimental studies in human-automation trust show that trust and risk have a complex relationship that need further exploration (Chancey, Bliss, Yamani, & Handley, 2017; Ezer, Fisk, & Rogers, 2008; Lewandowsky, 2000; Lyons & Stokes, 2012; Pederson, Anderson, Köslich, Weigelin, & Kuusinen, 2018; Perkins, Miller, Hashemi, & Burns, 2010; Riley, 1994, 1996; Robinette, 2015; Satterfield, Baldwin, de Visser, & Shaw, 2017). Despite mixed findings, findings support that higher "risk" situations may lead to less reliance or behavioral trust of a system (Ezer et al., 2008; Lewandowsky, 2000; Lyons & Stokes, 2012; Pederson et al., 2018; Riley, 1994, 1996; Satterfield et al., 2017). For more details on this literature see Stuck and Walker (2020).

To understand exactly how and what aspects of risk are important to trust, a model of trust and risk was developed based on a review of both human-human and human-automation trust literature (Stuck & Walker, 2020). See Figure 1. This model identified the aspects of risk that interact with trust and how they interact. First, this model separates perceived risk into two different types: perceived relational risk and perceived situational risk (defined in the next section; Stuck & Walker, 2020). In addition, the model highlights how risk-taking propensity could influence behavioral trust.

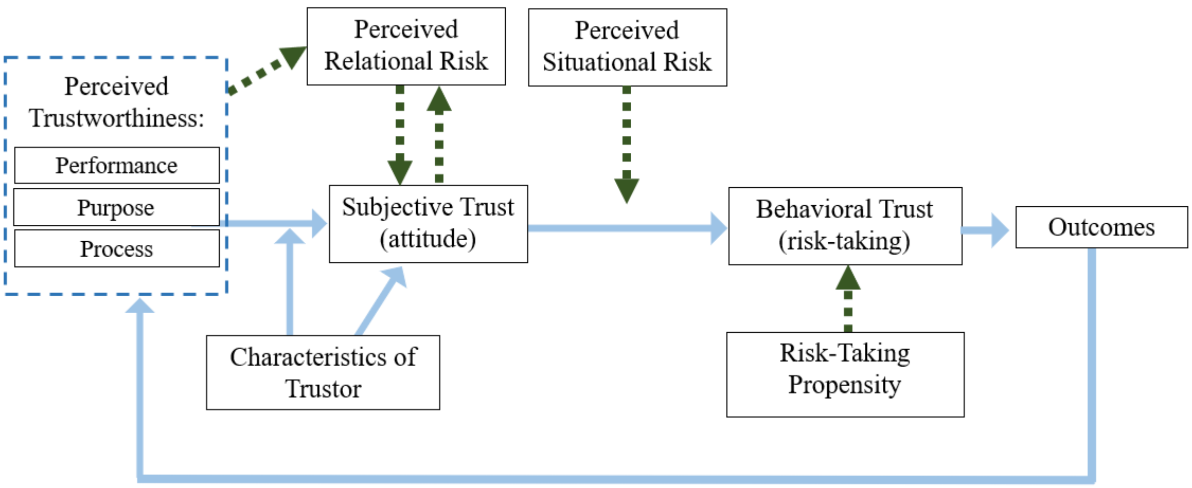



**Figure 1. Trust and Risk model adapted from Mayer et al., 1995 and Lee & See, 2004. Blue lines represent the relationships identified by Mayer et al., 1995. The green lines represent the relationships identified in Stuck and Walker, 2020.**

In this model, perceived relational risk is related to an individual's trust; and they are both impacted by how trustworthy the automation is perceived to be. For example, if the automation is unreliable it will cause trust to be lower and perceived relational risk to be higher. Perceived situational risk impacts how much subjective trust is needed for an individual to behaviorally trust the automation. If there is a high perceived situational risk (e.g., potential for serious bodily harm), the individual will need a higher level of trust in the automation to rely on it than if the perceived situational risk was low (e.g., might cause very mild discomfort).

Risk is a key component to include in the study of trust to (1) ensure construct validity when measuring behavioral trust, and (2) understand trust within a context that requires it. This is true no matter the context in which the construct of trust is being studied (i.e., human-human interaction, human-human teaming, human-automation interaction, human-automation teaming, human-robot interaction, human-robot teaming). This recent model includes risk into how it will or should interact with trust, based on theory surrounding trust and studies that have been conducted to explore risk and trust (Stuck & Walker, 2020). This provides a foundation for studying trust and risk together. Perceived risk is a key component of this model and is important to understand at a deeper level.

## 2.3 Perceived Risk

To understand how risk is a key part of trust, it is important to understand the two types of perceived risk identified in the model, as well as what components from previous perceived risk research that are relevant to building scales for both of these constructs--domains of risk and previous perceived risk measurements.

### *2.3.1 Types of Perceived Risk*

The model depicted in Figure 1 is the first to separate perceived risk into two distinct types for human-automation interaction: perceived relational risk and perceived situational risk (Stuck & Walker, 2020). Therefore, a more explicit review of these two types is provided here.

Perceived relational risk is defined as "an individual's belief about the probability and/or feeling that interacting with a specific system, technology, or person, with which a user has a personal history or historical knowledge of, has potential negative outcomes" (Stuck & Walker, 2020). Perceived relational risk has a negative relationship with trust in that specific system, technology, or person because the riskier you perceived the technology to be, the less you trust it, and vice versa. For example, if an individual has a cell phone that constantly loses connection, they will then have a higher perceived relational risk of their cell phone when making a call or using cell data.

Perceived situational risk is defined as “an individual’s belief of the probability and/or feeling that a specific task or context has potential negative outcomes based on their knowledge and experience with the task, but regardless of a personal history, or historical knowledge of the system, technology, or person that may be relied on in that situation” (Stuck & Walker, 2020). Perceived situational risk influences how much trust is needed for an individual to behaviorally trust (take a risk) in that situation. If a user has a very low perceived situational risk, then they will need only a low level of trust to rely on the automation. For example, if an individual needs to contact someone very important (e.g., 911), regardless of whether she/he is using a phone or other technology, she/he will perceived a high situational risk of not being able to contact that other person because it will negatively impact her/him.

For more details on the development and clarity of these two types of perceived risk see Stuck and Walker (2020).

### *2.3.2 Domains of Perceived Risk*

Domains of perceived risk are also known component of perceived risk. Previous research has shown that risk-taking behavior is influenced by domain (Fox-Glassman & Weber, 2016; Wildavsky & Dake, 1990). Previous work has also found that even for general domains of technologies, domains of perceived risk varied by technology (Stuck & Walker, 2019).

As domains are a key part of perceived risk, it is important to identify what the domains of risk are relevant. A scale developed by Jacoby and Kaplan (1972) identified: financial, performance, physical, psychological, and social risk. Time loss has also been identified as a risk (Roselius, 1971). A recent study explored using the domains identified by Jacoby and Kaplan, found that these domains alone did account for the variance of the overall risk score (despite being primed with the domains first) (Stuck & Walker, 2019). Those findings suggest that there may be additional domains of risk to consider. There are three additional domains of risk identified that might be pertinent to human-automation interact: ethical, privacy, and security. Ethical risk was included in a measure of perceived risk and risk-taking behaviors (DOSPERT; Weber et al., 2002). Research exploring perceptions of modern technologies have also suggested that privacy and security are risks that are important to incorporate when looking at perceived risk in automation (Mitzner, Stuck, Hartley, Beer, & Rogers, 2017).

Although domains of risk have been identified, they have rarely been defined. In a recent book chapter focusing on human-robot trust, identified definitions for each of these domains for both perceived situational risk and perceived relational risk (Stuck, Holthausen, & Walker, 2020). These definitions are provided in Table 1.

**Table 1. Domain Definitions for Perceived Relational and Situational Risk**

| Domain | Perceived Relational Risk | Perceived Situational Risk |
|---|---|---|
| **Physical** | Physical relational risk is the belief that a specific third party (e.g., robot) could cause physical harm (to the individual or others) or negatively impact health. | Physical situational risk is the belief that the task or situation could cause damage, physical harm or negatively impact health. |
| **Financial** | Financial relational risk is the belief, stemming from experience, that one could lose money because the robot has a history of failing to function appropriately; or it has a reputation for requiring frequent expensive repairs | Financial situational risk is the belief that one could lose money in a given task or situation. |
| **Performance** | Performance relational risk is the belief that a specific third party (e.g., robot) is unreliable in its functioning; or that something could be wrong with it, which might negatively impact task completion. | Performance situational risk is the belief that there could be negative implications of the task not being completed correctly, being incomplete, or failing, regardless of who (or what) is completing the task |
| **Social** | Social relational risk is the belief that a specific third party (e.g., robot) impacts how other people think about the user of the robot (Jacoby & Kaplan, 1972). | Social situational risk is the belief that the task impacts the way that people think about the individual. |
| **Psychological** | Psychological *relational* risk is the belief that specific third-party (e.g., robot) actions might not align with the user's self-image or the way they think about themselves (Jacoby & Kaplan, 1972); or that a particular robot might cause them emotional or psychological harm**.** | Psychological situational risk is the belief that the task or situation might not align with the user's identity or the way they think about themselves; or that a situation may lead to, for example, sadness or anxiety. |

**Table 2. Continued.**

| | | |
|---|---|---|
| **Time Loss** | Time loss relational risk is the belief that a specific third party (e.g., robot) might be late or delayed, might not be efficient with time, or might require extra effort. | Time loss situational risk is the belief that time could be used in a way that is perceived to be inefficient or ineffective |
| **Ethical** | Ethical relational risk can be defined as the belief that a specific third party's actions (e.g., robot) are immoral or incongruent with the moral beliefs of the individual. | Ethical situational risk can be defined as the belief that the task or situation could be viewed as immoral or incongruent with the moral beliefs or values of the individual. |
| **Privacy** | Privacy relational risk is the belief a specific third party (e.g., robot or social media sharing algorithm) will expose the user or their environment to unauthorized observation or disturbance. | Privacy situational risk is the belief that a task or activity will likely expose personal information about the user or their surroundings. |
| **Security** | Security relational risk is the belief that a specific third party (e.g., robot) could be vulnerable to being misused for crime, sabotage, attack, or some other threat to safety. | Security situational risk is the belief that the task or situation could be vulnerable to crime, sabotage, attack, or some other threat to safety. |

(Stuck et al., 2020)

For a more thorough review of these domains and examples of each, see Stuck et al. (2020).

## 2.4 Current Measures of Perceived Risk

Although there are no current measures for perceived relational risk and perceived situational risk, there are various scales that have focused on measuring perceived risk for other contexts. Some of these have focused on perceived risk of hazards that measure perceived risk in general—not domain specific (Slovic, Fischhoff, & Lichtenstein, 1980;

Wilson et al., 2019). Other measures have focused specifically on domains of perceived risk (Jacoby & Kaplan, 1972; Roselius, 1971; Weber et al., 2002). To develop a successful measure of perceived risk, it is essential to understand how it has previously been measured in different contexts.

Slovic, Fishcooff, and Lichtenstein (1980) explored risk perception with various hazards (i.e., smoking, handguns, electric power, surgery, etc.). For that study, risk was evaluated on 18 different risk characteristics:

> severity not controllable; dread; globally catastrophic; little preventive control; certain to be fatal; risks and benefits inequitable; catastrophic; threatens future generations; not easily reduced; risks increasing; involuntary; affects me personally; not observable; unknown to those exposed; effects immediately; new (unfamiliar); unknown to science; and many peopled exposed.

Many of those characteristics formed clusters which all correlated with each other, suggesting that while the clusters may be distinguishable from one another, they are still highly related (Slovic et al., 1980). However, although the study measured perceived risk and various components, it did not identify a scale for measuring perceived risk for hazards. Further, the measure used for that study was not validated for construct validity nor for retest reliability.

Recently, a new measure for perceived risk has been developed that focused on making a measure that can be used in a broader range of research within risk perceptions of hazards (Wilson et al., 2019). For that measure development, the researchers conducted a review of the literature to identify key components of risk that needed to be included in the measure. Perceived risk was identified as a multi-dimensional construct comprised of an affective component; a perceived probability component; and a perceived severity component (Wilson et al., 2019). These components are reflective of the perceived risk literature that differentiates perceived risk into an analytical and affective component that work together (Slovic, Finucane, Peters, & MacGregor, 2004). For the scale items see Table 3.

**Table 3**. **Perceived Risk Measure by Wilson et al. (2018).**

| **Category** | **Item** |
|---|---|
| **Affect** | How concerned are you (if at all) about X? |
| | When you think about X for a moment, to what extent do you feel fearful? |
| | When you think about X for a moment, to what extent do you feel anxious? |
| | When you think about X for a moment, to what extent do you feel worried? |
| | Considering any potential effects that X might have on you personally, how concerned are you about X? |
| **Probability** | How likely is it that X will occur/you will do X this year where you live? |
| | I am confident that X will not occur/I will not do X this year where I live. |
| | How often do X occur where you live?/How often do you do X? |
| **Consequences** | If I did experience X, it is likely that it would negatively impact me. |
| | If I did experience X, it would have a severe effect on me personally |

*An item was omitted because it correlated with all 5 items with the affect scale: “How severe are the impacts of X where you live to you personally?

For the development of that measure, the study did not conduct test-retest reliability. This study did not explicitly state it was measuring “construct” validity, but it did claim a validity check was done by looking at the behavioral outcome variable (e.g., intentions to search for information related to a hazard) though type of validity was not clarified. The measure looked at whether the single item for perceived risk or the multi-dimensional items was more predictive of behavioral intentions,and found that multi-dimensional was more predictive. Therefore, for measuring perceived relational and situational risk, a multi-dimensional approach should be taken.

Although general measures of perceived risk exist, they are lacking in construct validity and test-retest reliability. They provide a starting point for the development of a scale to measure perceived relational and situational risk, but those scales need to be further validated.

In addition to measures of perceived risk that focus on general perceptions of risk, there have also been measures that focus on domain specific perceived risk. One scale was developed that focused on domains of risk perceptions of products (Jacoby & Kaplan, 1972). Another more recent scale focused on domain-specific risk attitudes toward risk-taking behaviors (Weber et al., 2002).

Despite the various measures that exist, there has been little assessment of construct validity for the scales of risk perception. In addition, only one of those scales (Weber et al., 2002) conducted test-retest reliability validations. Those scales provide a starting point for developing new scales that focus on both general and domain-specific components of perceived relational risk and perceived situational risk. However, as there is little work to build off for construct validity, this was a challenge to address for the scale development efforts.

# CHAPTER 3. METHODS

## 3.1 Participants

Two hundred and one adults participated in this study. To participate in this study participants had to be above the age of 18 and in the United States. Of these participants, 24 were excluded because they failed at least one attention check in the primary component of the survey. The test-retest attention checks were addressed separately as subjects reported frustration with encountering the same questions again. Data from the test-retest section were treated separately and only the test-retest data for a participant were excluded if they failed one attention check in the test-retest portion. For the test-retest data section only, another 8 participants were excluded due to attention check failures. All participants were recruited through Mechanical Turk and compensated $6.00 for completion of the study. Upon reports of frustration and complaints about compensation, an additional 2 dollars was given to all participants who had completed the study for a total of $8.00.

One hundred and seventy-seven participants were included in the final study. The participants had a mean age of 42.8 (*SD*= 13.789, age range: 21-76). Fifteen participants are not included in the age analysis because they input an invalid age. The sample included 10 more females than males, and one non-binary/third gender participant. The participants were predominantly white with less than 25% of the sample being Asian, Black, more than one race, or other. Most of the sample had at least some college or a Bachelor’s degree. For details on the gender, ethnicity, and education of the sample See Table 4.

**Table 4. Participant Demographics**

| Descriptor: | | Participants |
|---|---|---|
| Gender | Female | 52.5% (93) |
| | Male | 46.9% (83) |
| | Non-binary/third gender | 0.6% (1) |
| Ethnicity | Asian | 7.9% (14) |
| | Black/African American | 10.2% (18) |
| | White/Caucasian | 76.8% (136) |
| | More than one race | 3.4% (6) |
| | Other | 1/7% (3) |
| Education | High school graduate/GED | 12.4% (22) |
| | Vocational Training | 4.0% (7) |
| | Some or in-progress college/Associates degree | 45% (25.4) |
| | Bachelor’s degree (BA, BS) | 43.5% (77) |
| | Master’s degree | 13% (23) |
| | Doctoral degree | 1.7% (3) |

## 3.2 Materials

A variety of materials were used in this study. These included the scale items that were developed for this study, and other questionnaires or scales that were administer as part of construct validity and exploring relationships with these variables.

### *3.2.1 Scale Item Development*

A previous scale of perceived risk, though developed for perceived risk of hazards, identified three components relevant to this context to measure when considering perceived risk: probability, severity, and affect (Wilson et al., 2019). Therefore, the scales built off of this work by including items that evaluate perceptions of affect, as well as probability and severity. In addition to these components, this study also included domains in the scales of perceived relational and situational given the findings from previous work highlighting the importance of domains.

Affect is an important component of perceived risk (Slovic et al., 2004; Wilson et al., 2019). This scale used the Wilson et al. scale (2019) as a starting point to build the affective scale items. A total of 20 Likert scale items were made for both the perceived relational and situational risk scale affect items. Ten of the items are positively worded and ten of the items are negatively worded.

Probability and severity are also key components of perceived risk. Previous scales have measured probability and severity separately. However, by doing so, these scales only capture expected probabilities of catastrophic or very severe outcomes. As the scale being developed is designed to evaluate technologies that may be used in everyday life, it is unlikely that the consequences will always be catastrophic. Therefore, this scale was developed to capture probabilities of various severities of outcomes. This was done by creating severity items that have a 5-point Likert range of severity that can be weighted individually by probability. To capture variability of the severity of risks, the words chosen also ranged in severity. A variety of risk related words were rank ordered from most risky to least risky (See Appendix A). The words were chosen to represent the full range of risk from the rank ordering. The final words ordered from most risky to least risky were: catastrophic, disastrous, destructive, tragic, severe, dreadful, awful, bad, unpleasant, disappointing. The term risky was included in addition to these items. Participants were only given 10 points to assign for the probabilities overall so that the weightings cannot violate probability rules.

Domains were identified from Stuck et al. (2020). The purpose of evaluating domain of risk is to understand what domains are the most relevant to the individual for a given context. The domains for the list were also given a brief definition based on the definitions provided in Stuck et al. (2020), to ensure that participants are thinking about each domain in the appropriate way. Since detail about the perceived risk is gathered with general questions, the relevant information for which domain matter the most can be obtained through rank ordering of all the domains. In case there are domains that do not matter at all for a given context, after rank ordering all the risks, the participants were given the opportunity to give a cut off for when domain items no longer matter.

The scale items that were evaluated in this dissertation for perceived relational risk are in Appendix B. The scale items that were evaluated for this dissertation for perceived situational risk are in Appendix C.

### *3.2.2 Technologies and Situations/Tasks*

To validate the scale, technologies and tasks/situations needed to be selected for participants to rate their perceived risk with the newly developed items. A variety of activities were used to select the two technologies and two situations or tasks that would be used in the study.

For technologies, there were two brainstorming sessions with five individuals that resulted in a total of 307 technologies. The brainstorm sessions were structured by having the individuals think about technologies that could fit into a specific category (e.g., health technologies, tools, etc.). From this list of 307 technologies, 15 technologies were selected that were expected to range in risk level based on previous research (Stuck & Walker, 2019). These 15 technologies were then rank ordered in a study. See Appendix D. Based on these results, a higher risk and lower risk item were selected: electronic cigarette and calculator. These two technologies were chosen so that they would both be technologies that an individual would use and requires individual interactions with the technology. It had to be a technology that the individual chose to use or interact with. Although these technologies are not the only use for the scale, they were specifically chosen as previous perceived risk scales have already focused on perceived risk of technologies that could be a hazard, but that individuals are not individually interacting with it (e.g., nuclear power plant)

For tasks and situations, there was one brainstorming session with five individuals. The individuals were instructed to think of tasks or situations that the considered either low in risk or high in risk. At the end, there was a total of 82 tasks or situations. These were down selected to a list of 15 that were chosen to have a broad representation of low to high-risk. These were then rank ordered in a study. The results are reported in Appendix E. The final tasks and situations that will be used in this study are: drinking until you are black-out drunk and listening to music. Originally, "brushing your teeth" was chosen for the pilot. However, many participants listed the risks associated with not brushing your teeth and there was no variance intention to complete the task. Therefore, we decided to choose a task (listening to music) that has no direct negative health impacts to not completing the task and may potentially have a broader range in intention to complete the task. We also chose the tasks based on the same reasoning as justified for the technologies, tasks that the individual would choose to do. For example, undergoing surgery was not chosen because not every individual needs surgery and the need for surgery is often not an individual choice, but required due to medical disorders.

### *3.2.3 General Measure of Perceived Risk*

This perceived risk scale was developed to measure perceived risk of hazards. The wording has been adapted from the original wording to be applicable to the tasks and situations used in this study. The scale that was used was the most recent version of the scale that is currently unpublished. This scale was administered to explore its relationship with the scale being developed and if there are components of perceived risk of hazards that are not pertinent to this context. See Appendix F.

### *3.2.4 Positive and Negative Affect Schedule (PANAS)*

PANAS is a scale used to measure positive and negative affect that can be used either to gain insight into an individual's affect (Watson, Clark, & Tellegen, 1988). This scale was modified to focus on a participant's affective attitude towards a specific task or technology. This scale was administered to explore the relationship of positive and negative affect to perceived risk. See Appendix G.

### *3.2.5 Experience and Behavioral Intention to Use*

As previous measures of perceived risk focused on behaviors in relation to preparedness for the risk, we administered questions about past experience/use of the technologies or tasks, as well as about behavioral intentions for future use or involvement. See Appendix H.

### *3.2.6 Automation Trust Scale*

As previous work focusing on trust and perceived risk in technologies found a relationship between these variables, we further explored this relationship by administering the Trust Scale developed by (Jian, Bisantz, & Drury, 2000; Jian et al., 1996). See Appendix I.

### *3.2.7 Demographics and Other Scales*

In addition, general demographic questions were asked to be able to describe the participants. These included age, gender, and education level. See Appendix J. To provide distractor tasks that will help ensure that participants do not remember the exact responses given when doing test-retest reliability, the following surveys were administered: Ten Item Personality Inventory (TIPI) (Gosling, Rentfrow, & Jr., 2003), propensity to trust (Evans & Revelle, 2008), and the domain specific risk taking scale (DOSPERT) (Weber et al., 2002). See Appendix K.

## **3.3 Procedure**

Participants were recruited through Mechanical Turk and completed the survey via Qualtrics. Prior to participation, participants gave informed consent. They then completed in randomized order: perceived relational risk items for calculator, perceived relational risk items for electronic cigarette, perceived situational risk items for listening to music, and perceived situational risk items for drinking until black out drunk. Before they completed each of those scales, they were asked to describe potential negative outcomes from using the technology, completing the task, or being in that situation. This was incorporated as a suggestion from one of the researchers (Hugh Walpole, personal communication) who developed the general measure of perceived risk (Wilson et al., 2019) and stated that in their experience it helped to give the participants some time to consider the negative outcomes before completing the scale. Then participants completed the perceived risk scale developed by Wilson for each technology and task. After this, participants completed PANAS, list of negative outcomes, experience and behavioral intention to use, and the trust scale. Then the participants were randomly administered the demographic items and distractor scales. At the end of the survey, the participants were randomly assigned a perceived relational risk items for one of the technologies and the perceived situational risk items for one of the tasks or situations repeated. Those were evenly randomly assigned with the following four groups: calculator/listening to music, calculator/drinking until blackout drunk, electronic cigarette/listening to music, and electronic cigarette/drinking until blackout drunk.

### 3.4 Pilot

To ensure methods and sample size would be appropriate, a pilot study was conducted prior to the final data collection. For details of the pilot study, see Appendix L. The main take-away was that the methods worked and the plan for analysis was finalized. Based on the pilot data, the low-risk task was changed from “brushing your teeth” to “listening to music” due to participants’ descriptions of the negative outcomes of not brushing your teeth instead of the task itself and determining that this may be confounding. In addition, power analyses were calculated to ensure that the number of participants for the study would be sufficient for the low and high-risk comparisons.

# CHAPTER 4. RESULTS

## 4.1 Overview of Analysis

The following data were analyzed with a variety of methods to evaluate internal validity, test-retest reliability, and construct validity. The item totals and scoring were calculated in Excel. All other calculations were conducted with SPSS. The code for the parallel analysis utilized within SPSS was developed by O'Connor (2000) and is listed in Appendix M.

### *4.1.1 Item Calculation and Scoring*

To calculate the scores for the probability and severity items, a weighted Likert scale was used. The probabilities assigned to each level of severity were used as a weighting between 0-10. The items are assigned values as are response items in Likert scales (e.g., 5-Extremely, 4-Very, 3-Somewhat, 2-Slightly, 1-Not at all). The probability weighting was multiplied by the level of the Likert scale and then divided by 10 since that is the total of probabilities assigned. This was done for each item and then these scores were totalled for the overall score for that individual.

For example, if an individual assigned the following weights:

| | |
|---|---|
| (5) The outcomes of using this technology will be extremely risky. | 5 |
| (4) The outcomes of using this technology will be very risky. | 3 |
| (3) The outcome of using this technology will be somewhat risky. | 2 |
| (2) The outcomes of using this technology will be slightly risky. | 0 |
| (1) The outcomes of using this technology will not be risky at all. | 0 |

The individual's score for how risky the technology is would be ((5*5)/10) + ((4*3)/10) + ((3*2)/10) + ((2*0)/10) +((1*0)/10= 4.3.

For the affective items, negative items were reverse coded. The domains were rank ordered and so there is no additional work for scoring those items.

## 4.2 Perceived Relational Risk: Calculator

### *4.2.1 Affect Items*

#### 4.2.1.1 Internal Reliability

To evaluate internal reliability, first a parallel analysis was conducted to determine the number of factors. For the parallel analysis, 100 random data sets were created and the 75 percentile of the eigenvalues were obtained to be utilized as a cut off. Two factors were retained because only the first factor of the raw data were greater than the seventy-fifth percentile eigenvalue for the randomly generated data. See Appendix N.

Once the number of factors was determined, a factor analysis with a Varimax rotation was then conducted using 2 factors. This factor analysis showed that the positive factors were loading onto 1 factor and the negative factors were loading onto the 2 factor. As it is common for agree-disagree Likert items with positive and negative wordings to load onto two separate factors despite being only one factor (Roberts, Laughlin, & Wedell, 1999), further evaluation was conducted to see if this was the case with this scale. By observing the plots of the pattern coefficients it was determined that as the items formed two clumps that could have a straight line drawn between them that there is really only one factor (Roberts et al., 1999). An exploratory factor analysis was then also conducted using a Quartimax rotation. This clearly represented that the factors fell along one dimension. Given these data and that it is known that negative and positive factors tend to divide into 2 factors within a factor analysis even though it is truly only one factor, a final factor analysis was conducted with just one factor. See Appendix O for SPSS analyses output. All items with a factor loading below 0.7 were removed. A total of six items were removed: PA2_Calc, PA4_Calc, PA5_Calc, PA7_Calc, PA8_Calc, and PA10_Calc. For factor loadings for each item, see Table 5.

**Table 5. Affect Items for Calculator Factor Matrix**

**Affect Items for Calculator Factor Matrix[a]**

| **Scale Item** | **Item Label** | **Factor 1** |
|---|---|---|
| I am very concerned about using this technology. | NA1_Calc | .904 |
| I am very fearful of using this technology. | NA2_Calc | .878 |
| I am very anxious about using this technology. | NA3_Calc | .882 |
| I am very nervous about using this technology. | NA4_Calc | .912 |
| I am very concerned about the effects that using this technology could have on me. | NA5_Calc | .893 |
| I am very concerned about the effects that using this technology could have on people close to me (e.g., friends and family). | NA6_Calc | .804 |
| I am very concerned about the effects that using this technology could have on the general public. | NA7_Calc | .779 |
| Thinking about using this technology makes me feel very distressed. | NA8_Calc | .884 |
| Thinking about using this technology makes me feel very worried. | NA9_Calc | .832 |
| Thinking about using this technology makes me feel very frightened. | NA10_Calc | .844 |
| Thinking about using this technology does not worry me at all. | PA1_Calc | -.743 |
| Using this technology is not threatening to me at all. | PA2_Calc | -.680 |

**Table 6. Continued**

| | | |
|---|---|---|
| I have no concerns about the effects that using this technology could have on me. | PA3_Calc | -.765 |
| I have no concerns about the effects that using this technology could have on people close to me (e.g., friends and family). | PA4_Calc | -.659 |
| I have no concerns about the effects that using this technology could have on the general public. | PA5_Calc | -.571 |
| I am calm when thinking about using this technology. | PA6_Calc | -.764 |
| I do not feel any anxiety when thinking about using this technology. | PA7_Calc | -.645 |
| I feel peaceful when thinking about using this technology. | PA8_Calc | -.653 |
| I do not feel any distress when thinking about using this technology. | PA9_Calc | -.713 |
| I do not feel unsettled at all when thinking about using this technology. | PA10_Calc | -.612 |

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 3 iterations required.

After removal of the items and reverse coding of the negative items, a Cronbach's alpha was calculated for these items. The internal reliability for these items were excellent (Cronbach's α = .969). The term excellent was based descriptors provided by George and Mallery (2003): 0.9-excellent; 0.8-good; 0.7-acceptable; 0.6-questionable; 0.5-poor; Less than 0.5-unacceptable. One item was removed to improve the internal reliability: PA 9 (Cronbach's α = .970). See Appendix P for details.

4.2.1.2 <u>Test-Retest Reliability</u>

To evaluate the test-retest reliability of the final set of items, the test and retest scores were correlated to determine the test-retest reliability of the scale. Item averages for the final set of items retained were calculated for both the initial administration of the scale and for the second administration of the scale. Cases were omitted pairwise. The test-retest reliability was questionable with $r(86)=.664$, $p < .001$. See Appendix Q for output.

A second correlation was conducted after removing outliers using a 99% confidence interval cut off. Based on this cut off, two outliers were removed. After these were removed another correlation was calculated and resulted in a test-retest reliability was good with $r(82)=.860$, $p < .001$.

#### 4.2.1.3 Construct Validity

Construct validity was evaluated by exploring the average of the item scores with the general perceived risk measure (Wilson et al., 2019), PANAS (Watson et al., 1988), and the trust scale (Jian et al., 1996). Items had a strong negative relationship with the affect, severity, and susceptibility components of the general perceived risk measure. The items had a weak negative relationship with positive affect and a moderate negative relationship with negative affect. The affect items also had a weak positive relationship with trust, but a strong negative relationship with distrust. See Table 7. See Appendix R for detailed output.

### *4.2.2 Probability x Severity Items*

#### 4.2.2.1 Internal Reliability

To determine the number of factors for the Probability x Severity times, a parallel analysis was also conducted for which 100 random data sets were created and the 75 percentile of the eigenvalues were obtained to be utilized as a cut off. Only one factor was retained because only the first factor of the raw data were greater than the seventy-fifth percentile eigenvalue for the randomly generated data. See Appendix N.

**Table 7. Construct Validity for Affect Items: Calculator**

**Construct Validity for Affect Items: Calculator**

| | | | Affect Item Score |
|---|---|---|---|
| **General Perceived Risk Measure** | Affect | Pearson Correlation | -.714** |
| | Exposure | Pearson Correlation | -.060 |
| | Severity | Pearson Correlation | -.709** |
| | Susceptibility | Pearson Correlation | -.701** |
| **PANAS** | Positive Affect | Pearson Correlation | -.292** |
| | Negative Affect | Pearson Correlation | -.693** |
| **Trust Scale** | Trust | Pearson Correlation | .289** |
| | Distrust | Pearson Correlation | -.739** |
| | ** Correlation is significant at the 0.01 level (2-tailed). | | |

A factor analysis was then conducted with one factor. All items retained as they all loaded 0.7 or higher onto the factor. See Appendix O for SPSS analyses output. See Table 8 for factor loadings.

To evaluate the internal reliability of the items, a Cronbach's alpha was calculated. These items had excellent internal reliability (Cronbach's α = .993). After three items were removed that did not help the reliability or hurt the reliability (risky, dreadful, and disappointing) the internal reliability increased (Cronbach's α = .994). See Appendix P.

4.2.2.2 Test-Retest Reliability

A Pearson correlation was utilized to determine the test-retest reliability of the scale. Item averages for final set of items retained were calculated for both the initial administration of the scale and for the second administration of the scale. Cases were omitted pairwise.

The scale had good test-retest reliability, $r(84)=.866$, $p < .001$. A second correlation was conducted after removing outliers using a 99% confidence interval cut off. Using this cut off, 2 outliers were removed. After removing these outliers, the test-retest improved and resulted in excellent reliability, $r(82)=.987$, $p < .001$. See Appendix Q for output.

**Table 8. Probability x Severity Items for Calculator Factor Matrix**

**Probability x Severity Items for Calculator Factor Matrix[a]**

| | Factor |
|---|---|
| | 1 |
| Risky | .921 |
| Catastrophic | .986 |
| Disastrous | .985 |
| Destructive | .985 |
| Tragic | .979 |
| Severe | .969 |
| Dreadful | .957 |
| Awful | .981 |
| Bad | .969 |
| Unpleasant | .979 |
| Disappointing | .901 |

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 3 iterations required.

4.2.2.3 Construct Validity

To evaluate the construct validity of the probability severity items, correlations with the general perceived risk measure (Wilson et al., 2019), PANAS (Watson et al., 1988), and the trust scale (Jian et al., 1996) were calculated. The probability severity items had a strong positive relationship with the affect, severity, and susceptibility components of the general perceived risk scale. The items also had a weak positive relationship with positive affect and a strong positive relationship with negative affect. The probability severity items had a weak negative relationship with trust and a strong positive relationship with distrust. See Table 9. See Appendix R for detailed output.

**Table 9. Construct Validity for Probability x Severity Items: Calculator**

**Construct Validity for Probability x Severity Items: Calculator**

| | | | Probability x Severity Score |
|---|---|---|---|
| **General Perceived Risk Measure** | Affect | Pearson Correlation | .717** |
| | Exposure | Pearson Correlation | 0.053 |
| | Severity | Pearson Correlation | .771** |
| | Susceptibility | Pearson Correlation | .727** |
| **PANAS** | Positive Affect | Pearson Correlation | .307** |
| | Negative Affect | Pearson Correlation | .714** |
| **Trust Scale** | Trust | Pearson Correlation | -.210** |
| | Distrust | Pearson Correlation | .755** |
| | ** Correlation is significant at the 0.01 level (2-tailed). | | |

### *4.2.3 Scale Results for Calculator*

The affect items had a mean of 6.11 (*SD*=1.33). The higher the score the lower the perceived risk. The Probability x Severity items had a mean of 1.34 (*SD*=0.71). The lower the score, the lower the perceived risk.

The domains were ranked by each participant from most important to least important to consider. When considering the risk of using a calculator, performance risk was the most frequently ranked as being the most important to consider and physical harm risk was on average rated the least important to consider. For details, see Table 10.

The lists of negative outcomes can give further qualitative insight into the domains. Some of the outcomes described by participants that related to performance included: malfunctioning during a test resulting in a bad grade, decline in math skills, and concerns of running out of batteries. They also described financial related risks such as the expense of the calculator or incorrect input resulting in financial loss. Other risks described included social risk--worry that others would judge them for using the calculator and physical harm--carpal tunnel.

**Table 10. Domain Rankings: Calculator**

**Domain Rankings: Calculator**

| | Mean | Std. Deviation |
|---|---|---|
| Performance Risk | 2.79 | 2.388 |
| Financial Risk | 3.99 | 2.476 |
| Time loss Risk | 4.48 | 2.358 |
| Social Risk | 4.69 | 2.185 |
| Psychological Risk | 5.21 | 2.383 |
| Security Risk | 5.49 | 2.154 |
| Ethical Risk | 5.79 | 2.600 |
| Privacy Risk | 5.80 | 2.196 |
| Physical Harm Risk | 6.77 | 2.296 |

Items rank ordered from 1 to 9 with 1=Most Important to 9=Least Important

## 4.3 Perceived Relational Risk: Electronic Cigarette

### *4.3.1 Affect Items*

#### 4.3.1.1 Internal Reliability

To determine the number of factors for the affect items for the high-risk technology electronic cigarette, a parallel analysis was conducted. For the parallel analysis, 100 random data sets were created and the 75 percentile of the eigenvalues were obtained to be utilized as a cut off. Two factors were retained because only the first factor of the raw data was greater than the seventy-fifth percentile eigenvalue for the randomly generated data. See Appendix N.

A factor analysis was conducted with a Varimax rotation with 2 factors. Similar to the affect items for the low-risk technology, all the positive items and all the negative items loaded onto the separate factors. To evaluate if these were in fact one factor that was splitting into two due to the nature of agree-disagree responses (Roberts et al., 1999), the plots showed that the items still fell along one dimension and therefore it was determined there was only one factor. A final factor analysis was conducted with just one factor. All items were retained as all factor loadings were above 0.7. See Appendix O for SPSS analyses output. See Table 11 for factor loadings.

Once these loadings were determined, the internal reliability of the items was evaluated. The items had an excellent internal reliability (Cronbach's $\alpha = .971$). No items were removed as all items contributed to the reliability. See Appendix P for details.

## Table 11. Affect Items for Electronic Cigarette Factor Matrix

**Affect Items for Electronic Cigarette Factor Matrix[a]**

| Scale Item | Item Label | Factor 1 |
|---|---|---|
| I am very concerned about using this technology. | NA1_Ecig | -.783 |
| I am very fearful of using this technology. | NA2_Ecig | -.783 |
| I am very anxious about using this technology. | NA3_Ecig | -.774 |
| I am very nervous about using this technology. | NA4_Ecig | -.795 |
| I am very concerned about the effects that using this technology could have on me. | NA5_Ecig | -.814 |
| I am very concerned about the effects that using this technology could have on people close to me (e.g., friends and family). | NA6_Ecig | -.825 |
| I am very concerned about the effects that using this technology could have on the general public. | NA7_Ecig | -.758 |
| Thinking about using this technology makes me feel very distressed. | NA8_Ecig | -.716 |
| Thinking about using this technology makes me feel very worried. | NA9_Ecig | -.860 |
| Thinking about using this technology makes me feel very frightened. | NA10_Ecig | -.709 |
| Thinking about using this technology does not worry me at all. | PA1_Ecig | .797 |
| Using this technology is not threatening to me at all. | PA2_Ecig | .825 |
| I have no concerns about the effects that using this technology could have on me. | PA3_Ecig | .784 |
| I have no concerns about the effects that using this technology could have on people close to me (e.g., friends and family). | PA4_Ecig | .770 |
| I have no concerns about the effects that using this technology could have on the general public. | PA5_Ecig | .720 |
| I am calm when thinking about using this technology. | PA6_Ecig | .848 |
| I do not feel any anxiety when thinking about using this technology. | PA7_Ecig | .818 |
| I feel peaceful when thinking about using this technology. | PA8_Ecig | .779 |
| I do not feel any distress when thinking about using this technology. | PA9_Ecig | .839 |
| I do not feel unsettled at all when thinking about using this technology. | PA10_Ecig | .817 |

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 3 iterations required.

#### 4.3.1.2 Test-Retest Reliability

To evaluate test-retest reliability, totals from the original test and second test were calculated. Test retest reliability was excellent, $r(81)=.929$, $p < .001$. A second correlation was run after removal of any outliers using the 99% confidence interval as a cut-off. Upon removal of outliers, the final test-retest reliability was $r(79)=.962$, $p < .001$. See Appendix Q for output.

#### 4.3.1.3 Construct Validity

Construct validity was evaluated by exploring the average of the item scores with the general perceived risk measure (Wilson et al., 2019), PANAS (Watson et al., 1988), and the trust scale (Jian et al., 1996). Affect item totals for electronic cigarette had a strong negative relationship with the affect, severity, and susceptibility components of the general perceived risk measure. The items had a weak positive relationship with positive affect and a moderate negative relationship with negative affect. The affect items also had a moderate positive relationship with trust, but a moderate negative relationship with distrust. See Table 12. See Appendix R for detailed output.

### *4.3.2 Probability x Severity Items*

#### 4.3.2.1 Internal Reliability

To determine the number of factors for the Probability x Severity items for electronic cigarette a parallel analysis was conducted with 100 random data sets were created and the 75 percentile of the eigenvalues were obtained to be utilized as a cut off.  Only one factor was retained because only the first factor of the raw data was greater than the seventy-fifth percentile eigenvalue for the randomly generated data. See Appendix N.

**Table 12. Construct Validity for Affect Items: Electronic Cigarette**

**Construct Validity for Affect Items: Electronic Cigarette**

| | | | Affect Score |
|---|---|---|---|
| **General Perceived Risk Measure** | Affect | Pearson Correlation | -.778** |
| | Exposure | Pearson Correlation | .259** |
| | Severity | Pearson Correlation | -.719** |
| | Susceptibility | Pearson Correlation | -.775** |
| **PANAS** | Positive Affect | Pearson Correlation | .318** |
| | Negative Affect | Pearson Correlation | -.449** |
| **Trust Scale** | Trust | Pearson Correlation | .545** |
| | Distrust | Pearson Correlation | -.670** |
| | ** Correlation is significant at the 0.01 level (2-tailed). | | |

A factor analysis was conducted with one factor. See Appendix O for SPSS analyses output. All items retained as they all loaded 0.7 or higher onto the factor. See Table 13.

Items had excellent internal reliability Cronbach's α = .989. Items that did not help or hurt reliability were removed: risky, catastrophic, and disappointing. After these items were removed the alpha improved slightly, Cronbach's α = .990. See Appendix P for details.

4.3.2.2 Test-Retest Reliability

Total scores were calculated of the remaining items. Test-rest reliability was excellent, r(80)=.912, $p < .001$. A second correlation was run after removal of any outliers using the 99% confidence interval as a cut-off. After the removal of two outliers, the final test-retest reliability was r(78)=.948, $p < .001$. See Appendix Q for output.

**Table 13. Probability x Severity Items for Electronic Cigarette Factor Matrix**

**Probability x Severity Items for Electronic Cigarette Factor Matrix[a]**

| | Factor 1 |
|---|---|
| Risky | .889 |
| Catastrophic | .923 |
| Disastrous | .951 |
| Destructive | .970 |
| Tragic | .964 |
| Severe | .968 |
| Dreadful | .967 |
| Awful | .958 |
| Bad | .962 |
| Unpleasant | .960 |
| Disappointing | .897 |

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 3 iterations required.

#### 4.3.2.3 Construct Validity

To evaluate the construct validity of the probability severity items for electronic cigarette, correlations with the general perceived risk measure (Wilson et al., 2019), PANAS (Watson et al., 1988), and the trust scale (Jian et al., 1996) were calculated. The probability severity items had a moderate positive relationship with the affect, and a strong positive relationship with the severity and susceptibility components of the general perceived risk scale. The items also had a weak positive relationship with positive affect and a moderate positive relationship with negative affect. The probability severity items had a weak negative relationship with trust and a moderate positive relationship with distrust. See Table 14. See Appendix R for more details.

**Table 14. Construct Validity for Probability x Severity Items: Electronic Cigarette**

**Construct Validity for Probability x Severity Items: Electronic Cigarette**

| | | | Probability x Severity Score |
|---|---|---|---|
| **General Perceived Risk Measure** | Affect | Pearson Correlation | .640** |
| | Exposure | Pearson Correlation | -.153* |
| | Severity | Pearson Correlation | .716** |
| | Susceptibility | Pearson Correlation | .712** |
| **PANAS** | Positive Affect | Pearson Correlation | -.169* |
| | Negative Affect | Pearson Correlation | .401** |
| **Trust Scale** | Trust | Pearson Correlation | -.374** |
| | Distrust | Pearson Correlation | .611** |
| | ** Correlation is significant at the 0.01 level (2-tailed). | | |

### *4.3.3 Scale Results for Electronic Cigarette*

Electronic cigarette was rated as being moderate in risk with an affect score mean of 3.27 (*SD*=1.50) and a Probability x Severity score mean of 3.11 (*SD*=1.12).

The domains were ranked by each participant from most important to least important to consider. When considering the risk of using an electronic cigarette, physical harm risk was the most frequently ranked as being the most important to consider and privacy risk was on average rated the least important to consider. For details about rankings, see Table 15.

Participants descriptions of the negative outcomes of using an electronic cigarette give further insight into these domains. They described physical harm risks such as lung damage, death, cancer, or burns from the device exploding. For psychological risk, they described concerns of addiction to the device. Financial risks were associated with the cost of maintaining the habit or buying multiple flavors. There were also social risk concerns related to people judging the behavior or being irritated by having to smell the vapor, as well as the loss of friends.

**Table 15. Domain Rankings: Electronic Cigarette**

**Domain Rankings: Electronic Cigarette**

| | Mean | Std. Deviation |
|---|---|---|
| Physical Harm Risk | 1.65 | 1.629 |
| Psychological Risk | 3.97 | 2.170 |
| Financial Risk | 4.23 | 2.041 |
| Social Risk | 4.41 | 1.963 |
| Performance Risk | 4.73 | 2.192 |
| Ethical Risk | 6.19 | 2.030 |
| Security Risk | 6.40 | 2.248 |
| Time loss Risk | 6.55 | 1.947 |
| Privacy Risk | 6.88 | 2.101 |

Items rank ordered from 1 to 9 with 1=Most Important to 9=Least Important

## 4.4 Perceived Relational Risk: Low versus High-risk Technologies

To further validate construct validity, the items were also compared between the low and high-risk technologies to ensure the scale was capturing the risk difference between the calculator and the electronic cigarette. Paired sample t-tests were used to determine if the average of the final scale items for each technology for the affect items and the Probability x Severity items were different. There was a significant difference in the affect scores for calculator (*M*= 6.111, *SD*=1.326) and electronic cigarette (*M*=3.270, *SD*=1.504), *t*(176)=18.560, $p < .001$. There was also a significant difference in the Probability x Severity scores for calculator (*M*=1.339, *SD*=0.708) and electronic cigarette (*M*=3.107, *SD*=1.119), *t*(176)= -18.192, $p < .001$. See Appendix S.

## 4.5 Perceived Relational Risk: Exploratory Analysis

In addition to scale development, several additional questionnaires were administered as distractors between the test-retest portion. To begin exploring the relationships between these variables and the perceived relational risk. The items explored included: number of consequences listed, past and future usage of the technology, personality, propensity to trust, and DOSPERT. For details of the correlations see Table 16.

**Table 16. Exploratory Correlations: Perceived Relational Risk**

**Exploratory Correlations**

| | | Calculator | | Electronic Cigarette | |
|---|---|---|---|---|---|
| | | Affect Score | Probability x Severity Score | Affect Score | Probability x Severity Score |
| | Number of Consequences | 0.088 | -0.075 | -0.187** | 0.027 |
| **Usag** | Past Use | -0.044 | 0.123 | 0.478** | -0.385** |

**Table 17. Continued.**

| | | | | | |
|---|---|---|---|---|---|
| | **Future Use** | **0.115** | **-0.073** | **0.479**** | **-0.370**** |
| Personality | Extroversion | -0.125 | 0.040 | -0.107 | 0.146 |
| | Agreeableness | .184* | -.252** | -0.179* | 0.108 |
| | Conscientiousness | .266** | -.308** | -0.115 | 0.055 |
| | Neuroticism | 0.100 | -.196** | 0.08 | 0.066 |
| | Openness | 0.133 | -.238** | -0.143 | 0.029 |
| Propensity to Trust | Trustworthiness | 0.106 | -0.016 | -0.149* | 0.039 |
| | Trust | .213** | -.201** | -0.105 | 0.088 |
| DOSPERT | Ethical Risk Behavior | -.460** | .457** | 0.152* | -0.063 |
| | Financial Risk Behavior | -.466** | .458** | 0.136 | -0.054 |
| | Health Risk Behavior | -.482** | .447** | 0.180* | -0.063 |
| | Recreational Risk Behavior | -.485** | .425** | 0.168* | -0.029 |
| | Social Risk Behavior | -0.101 | 0.038 | 0.008 | -0.038 |
| | Ethical Perceived Risk | -0.050 | -0.009 | -0.069 | 0.065 |
| | Financial Perceived Risk | 0.081 | -0.095 | -0.002 | -0.089 |
| | Health Perceived Risk | 0.074 | -0.142 | -0.174 | 0.091 |
| | Recreational Perceived Risk | -0.032 | 0.043 | -0.259** | 0.196** |
| | Social Risk Perceived Risk | -.287** | .236** | -0.08 | 0.065 |

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

## 4.6 Perceived Situational Risk: Listening to Music

The next set of analysis were conducted to evaluate the scale items developed for the perceived situational risk scale. The same analyses were conducted separately for the low and high-risk task, as well as for the affect items and Probability x Severity items.

### *4.6.1 Affect Items*

#### 4.6.1.1 Internal Reliability

Again, a parallel analysis was conducted--100 random data sets were created and the 75 percentile of the eigenvalues were obtained to be utilized as a cut off. Two factors were retained because only the first factor of the raw data was greater than the seventy-fifth percentile eigenvalue for the randomly generated data. See Appendix N.

A factor analysis was conducted with a Varimax rotation. The items loading patterns were similar to the affect items previously discussed with all positive items loading on one factor and all the negative items loading onto the other factor. Observing the plots of the pattern coefficients the items were in separate clusters that could fall upon one line. As previously discussed, agree-disagree items can appear to be two factors when there is only one underlying factor (Roberts et al., 1999). A factor analysis with a Quartimax rotation clearly demonstrated the groupings fell along one factor. Therefore, it was determined that there was only one factor. A factor analysis was conducted with one factor. See Appendix O for SPSS analyses output. Three items were removed because they had a factor loading lower than 0.7: PA4_Music, PA7_Music, and PA10_Music. See Table 18.

**Table 18. Affect Items for Listening to Music Factor Matrix**

**Affect Items for Listening to Music Factor Matrix[a]**

| **Scale Item** | **Item Label** | **Factor 1** |
|---|---|---|
| I am very concerned about completing this task or being in this situation. | NA1_Music | .848 |
| I am very fearful of completing this task or being in this situation. | NA2_Music | .816 |
| I am very anxious about completing this task or being in this situation. | NA3_Music | .868 |
| I am very nervous of completing this task or being in this situation. | NA4_Music | .878 |

**Table 19. Continued**

| | | |
|---|---|---|
| I am very concerned about the effects that completing this task or being in this situation could have on me. | NA5_Music | .850 |
| I am very concerned about the effects that completing this task or being in this situation could have on people close to me (e.g., friends and family). | NA6_Music | .817 |
| I am very concerned about the effects that completing this task or being in this situation could have on the general public. | NA7_Music | .833 |
| Thinking about completing this task or being in this situation makes me feel very distressed. | NA8_Music | .866 |
| Thinking about completing this task or being in this situation makes me feel very worried. | NA9_Music | .809 |
| Thinking about completing this task or being in this situation makes me feel very frightened. | NA10_Music | .780 |
| Thinking about completing this task or being in this situation does not worry me at all. | PA1_Music | -.700 |
| Completing this task or being in this situation is not threatening to me at all. | PA2_Music | -.715 |
| I have no concerns about the effects that completing this task or being in this situation could have on me. | PA3_Music | -.721 |
| I have no worries about the effects that completing this task or being in this situation could have on people close to me (e.g., friends and family). | PA4_Music | -.674 |
| I have no worries about the effects that completing this task or being in this situation could have on the general public. | PA5_Music | -.731 |
| I am calm when thinking about completing this task or being in this situation. | PA6_Music | -.732 |
| I do not feel any anxiety when thinking about completing this task or being in this situation. | PA7_Music | -.674 |
| I feel peaceful when thinking about completing this task or being in this situation. | PA8_Music | -.729 |
| I do not feel any distress when thinking about completing this task or being in this situation. | PA9_Music | -.739 |
| I do not feel unsettled at all when thinking about completing this task or being in this situation. | PA10_Music | -.677 |

**Table 20. Continued.**

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 3 iterations required.

After removing the items, the internal reliability was evaluated. The items had excellent internal reliability Cronbach's α = .966. See Appendix P. All items contributed to reliability, therefore all items were retained.

4.6.1.2 Test-Retest Reliability

Total scores were calculated for the remaining items for the initial test and the second administration of the test. Test-retest reliability was acceptable; $r(85)=.749$, $p < .001$. A second correlation was run after removal of any outliers using the 99% confidence interval as a cut-off. Three outliers were removed resulting in a good test-retest reliability $r(82)=0.876$, $p < .001$. See Appendix Q for output.

4.6.1.3 Construct Validity

Construct validity was evaluated by exploring the average of the item scores with the general perceived risk measure (Wilson et al., 2019) and PANAS (Watson et al., 1988). Items had a moderate negative relationship with the affect, severity, and susceptibility components of the general perceived risk measure. The items had no relationship with positive affect and a moderate negative relationship with negative affect. See Table 21. See Appendix R for detailed output.

*4.6.2 Probability x Severity Items*

4.6.2.1 Internal Reliability

A parallel analysis was run for which 100 random data sets were created and the 75 percentile of the eigenvalues were obtained to be utilized as a cut off. See Appendix N. Only one factor was retained because only the first factor of the raw data were greater than the seventy-fifth percentile eigenvalue for the randomly generated data. A factor analysis was conducted with one factor. See Appendix O for SPSS analyses output. All items were retained as they all loaded 0.7 or higher onto the factor. See Table 22.

**Table 21. Construct Validity for Affect Items: Listening to Music**

**Construct Validity for Affect Items: Listening to Music**

| | | | Affect Score |
|---|---|---|---|
| **General Perceived Risk Measure** | Affect | Pearson Correlation | -.646** |
| | Exposure | Pearson Correlation | 0.091 |
| | Severity | Pearson Correlation | -.590** |
| | Susceptibility | Pearson Correlation | -.602** |
| **PANAS** | Positive Affect | Pearson Correlation | 0.061 |
| | Negative Affect | Pearson Correlation | -.587** |
| | ** Correlation is significant at the 0.01 level (2-tailed). | | |

To determine the internal reliability of the items, a Cronbach's alpha was calculated. The items had excellent internal reliability: Cronbach's $\alpha = .987$. Removing the item "disappointing" improved the internal reliability Cronbach's $\alpha = .988$. "Risky" was also removed as it did not help the reliability. See Appendix P for details.

4.6.2.2 Test-Retest Reliability

Total scores were calculated for the initial test and second administration of the scale items. Initial test-rest reliability was unacceptable, $r(85)=.482$, $p < .001$. A second correlation was run after removal of any outliers use the 99% confidence interval as a cut-off. Upon removal of four outliers, the final test-retest reliability was excellent, r(81)=.946, p < .001. See Appendix Q for output.

**Table 22. Probability x Severity Items for Listening to Music Factor Matrix**

**Probability x Severity Items for Listening to Music Factor Matrix[a]**

| | Factor |
|---|---|
| | 1 |
| Risky | .886 |
| Catastrophic | .943 |
| Disastrous | .970 |
| Destructive | .961 |
| Tragic | .962 |
| Severe | .956 |
| Dreadful | .963 |
| Awful | .971 |
| Bad | .948 |
| Unpleasant | .923 |
| Disappointing | .821 |

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 3 iterations required.

### 4.6.2.3 Construct Validity

To evaluate the construct validity of the probability severity items for listening to music, correlations with the general perceived risk measure (Wilson et al., 2019) and PANAS (Watson et al., 1988) were calculated. The probability severity items had a strong positive relationship with the affect and the severity components and a moderate positive relationship with the susceptibility components of the general perceived risk scale. The items also had no relationship with positive affect and a strong positive relationship with negative affect. See Table 23. See Appendix R for output.

**Table 23. Construct Validity for Probability x Severity Items: Listening to Music**

**Construct Validity for Probability x Severity Items: Listening to Music**

| | | | Probability x Severity Score |
|---|---|---|---|
| **General Perceived Risk Measure** | Affect | Pearson Correlation | .733** |
| | Exposure | Pearson Correlation | -0.038 |
| | Severity | Pearson Correlation | .709** |
| | Susceptibility | Pearson Correlation | .698** |
| **PANAS** | Positive Affect | Pearson Correlation | 0.091 |
| | Negative Affect | Pearson Correlation | .742** |
| | ** Correlation is significant at the 0.01 level (2-tailed). | | |

### *4.6.3 Scale Results for Listening to Music*

Listening to music was rated as being low in risk with an affect score mean of 5.96 (*SD*=1.24) and a Probability x Severity items had a mean of 1.37 (*SD*=0.66).

Domains of risk were rank ordered from most important to consider to least important. For listening to music, psychological risk and social risk were generally the most important to consider. Security risk was the least important to consider in this context. See Table 24.

When participants described the negative outcomes of listening to music, the examples primarily related to psychological or social risk. For psychologic risk, participants mentioned music influencing someone's emotions such as becoming sad or agitated. In addition, participants listed that the lyrics could cause negative influences such as making someone more violent or becoming part of a negative culture. For social risk participants described concern that others might not like their taste in music or that they could be annoyed by the loudness of the music. Other risks listed included lack of concentration and productivity, forgetting to do something, cost of the music, and hearing loss if the music is played too loud.

**Table 24. Domain Rankings: Listening to Music**

**Domain Rankings: Listening to Music**

| | Mean | SD |
|---|---|---|
| Psychological Risk | 3.60 | 2.536 |
| Social Risk | 3.88 | 2.269 |
| Time loss Risk | 4.21 | 2.544 |
| Performance Risk | 4.42 | 2.363 |
| Physical Harm Risk | 5.42 | 3.105 |
| Privacy Risk | 5.67 | 2.152 |
| Financial Risk | 5.69 | 2.223 |
| Ethical Risk | 5.84 | 2.370 |
| Security Risk | 6.28 | 2.058 |

Items rank ordered from 1 to 9 with 1=Most Important to 9=Least Important

## 4.7 Perceived Situational Risk: Drinking Until Blackout Drunk

### *4.7.1 Affect Items*

#### 4.7.1.1 Internal Reliability

To determine the number of factors, a parallel analysis was conducted for which 100 random data sets were created and the 75 percentiles of the eigenvalues were obtained to be utilized as a cut off. Two factors were retained because only the first factor of the raw data were greater than the seventy-fifth percentile eigenvalue for the randomly generated data. See Appendix N.

An exploratory factor analysis with two factors was conducted with a Varimax rotation. As with all the previous affect items, the factors were one for the positive items and one for the negative items. Similarly, observing the plots of the pattern coefficients showed that the items formed clusters that fell upon one line. A factor analysis with a Quartimax rotation shows this clearly, therefore the factor analysis was re-run with 1 factor. See Appendix O for SPSS analyses output. One item, NA4_Drunk, was removed because it had a factor loading below 0.7. See Table 25.

**Table 25. Affect Items for Drinking Until Blackout Drunk Factor Matrix**

**Affect Items for Drinking Until Blackout Drunk Factor Matrix[a]**

| Scale Item | Item Label | Factor 1 |
|---|---|---|
| I am very concerned about completing this task or being in this situation. | NA1_Drunk | -.805 |
| I am very fearful of completing this task or being in this situation. | NA2_Drunk | -.788 |
| I am very anxious about completing this task or being in this situation. | NA3_Drunk | -.756 |
| I am very nervous of completing this task or being in this situation. | NA4_Drunk | -.694 |
| I am very concerned about the effects that completing this task or being in this situation could have on me. | NA5_Drunk | -.777 |
| I am very concerned about the effects that completing this task or being in this situation could have on people close to me (e.g., friends and family). | NA6_Drunk | -.773 |
| I am very concerned about the effects that completing this task or being in this situation could have on the general public. | NA7_Drunk | -.747 |

**Table 26. Continued.**

| | | |
|---|---|---|
| Thinking about completing this task or being in this situation makes me feel very distressed. | NA8_Drunk | -.745 |
| Thinking about completing this task or being in this situation makes me feel very worried. | NA9_Drunk | -.781 |
| Thinking about completing this task or being in this situation makes me feel very frightened. | NA10_Drunk | -.736 |
| Thinking about completing this task or being in this situation does not worry me at all. | PA1_Drunk | .826 |
| Completing this task or being in this situation is not threatening to me at all. | PA2_Drunk | .768 |
| I have no concerns about the effects that completing this task or being in this situation could have on me. | PA3_Drunk | .850 |
| I have no worries about the effects that completing this task or being in this situation could have on people close to me (e.g., friends and family). | PA4_Drunk | .851 |
| I have no worries about the effects that completing this task or being in this situation could have on the general public. | PA5_Drunk | .786 |
| I am calm when thinking about completing this task or being in this situation. | PA6_Drunk | .840 |
| I do not feel any anxiety when thinking about completing this task or being in this situation. | PA7_Drunk | .876 |
| I feel peaceful when thinking about completing this task or being in this situation. | PA8_Drunk | .828 |
| I do not feel any distress when thinking about completing this task or being in this situation. | PA9_Drunk | .852 |
| I do not feel unsettled at all when thinking about completing this task or being in this situation. | PA10_Drunk | .832 |

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 3 iterations required.

The internal reliability was evaluated for the rest of the items. The items had excellent internal reliability Cronbach's α = .971. One item was removed that did not help the reliability, NA 10. See Appendix P for details.

#### 4.7.1.2 Test-Retest Reliability

To determine the test-retest reliability, total scores were calculated based on the final set of items for both the initial administration of the scale items and second administration of the items. Test-retest reliability was poor, r(79)=.592, p < .001. A second correlation was run after removal of any outliers use the 99% confidence interval as a cut-off. Three outliers were removed resulting in an acceptable test-retest reliability, r(76)=.718, p < .001. See Appendix Q for output.

#### 4.7.1.3 Construct Validity

To evaluate construct validity, the item totals were correlated with the general perceived risk measure (Wilson et al., 2019) and PANAS (Watson et al., 1988). The items had a moderate negative relationship with the affect, severity, and susceptibility components of the general perceived risk measure. The items had a weak negative relationship with negative affect. See Appendix R for output and Table 21 for correlations.

**Table 27. Construct Validity for Affect Items: Drinking Until Blackout Drunk**

**Construct Validity for Affect Items: Drinking Until Blackout Drunk**

| | | | Affect Score |
|---|---|---|---|
| **General Perceived Risk Measure** | Affect | Pearson Correlation | -.560** |
| | Exposure | Pearson Correlation | .169* |
| | Severity | Pearson Correlation | -.388** |
| | Susceptibility | Pearson Correlation | -.399** |
| **PANAS** | Positive Affect | Pearson Correlation | 0.121 |
| | Negative Affect | Pearson Correlation | -.182* |
| | ** Correlation is significant at the 0.01 level (2-tailed). | | |

### 4.7.2 *Probability x Severity Items*

#### 4.7.2.1 Internal Reliability

A parallel analysis was conducted through generating 100 random data sets and utilizing the 75 percentile of the eigenvalues as a cut off. Only one factor was retained because only the first factor of the raw data were greater than the seventy-fifth percentile eigenvalue for the randomly generated data. See Appendix N.

A factor analysis was conducted with one factor. See Appendix O for SPSS analyses output. All items retained as they all loaded 0.7 or higher onto the factor. See Table 28.

**Table 28. Probability x Severity Items for Drinking Until Blackout Drunk Factor Matrix**

**Probability x Severity Items for Drinking Until Blackout Drunk Factor Matrix[a]**

| | Factor |
|---|---|
| | 1 |
| Risky | .736 |
| Catastrophic | .855 |
| Disastrous | .923 |
| Destructive | .936 |
| Tragic | .906 |
| Severe | .935 |
| Dreadful | .950 |
| Awful | .950 |
| Bad | .936 |
| Unpleasant | .919 |

**Table 29. Continued**

| | |
|---|---|
| Disappointing | .891 |

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 3 iterations required.

The items were then evaluated for their internal reliability. They had an excellent internal reliability Cronbach's α =.980. One item was removed (risky) to improve reliability, Cronbach's α = .982. See Appendix P for details.

#### 4.7.2.2 Test-Retest Reliability

After removal of the one item, total scores were calculated and the test-retest scores were correlated. Test-retest was acceptable, $r(81)=.728$, $p < .001$. A second correlation was run after removal of any outliers use the 99% confidence interval as a cut-off. After two outliers were removed, test-retest was good, $r(79)=.857$, $p < .001$. See Appendix Q for output.

#### 4.7.2.3 Construct Validity

To evaluate construct validity, the items were correlated with the general perceived risk measure (Wilson et al., 2019) and PANAS (Watson et al., 1988). The items were moderately positively related to the affect, severity, and susceptibility scores. The items were not significantly related to either positive or negative affect. See Table 30 or see Appendix R for detailed output.

**Table 30. Construct Validity for Probability x Severity Items: Drinking until Blackout Drunk**

**Construct Validity for Probability x Severity Items: Drinking Until Blackout Drunk**

| | | | Probability x Severity Score |
|---|---|---|---|
| **General Perceived Risk Measure** | Affect | Pearson Correlation | .455** |
| | Exposure | Pearson Correlation | -0.025 |
| | Severity | Pearson Correlation | .502** |
| | Susceptibility | Pearson Correlation | .477** |
| **PANAS** | Positive Affect | Pearson Correlation | -0.061 |
| | Negative Affect | Pearson Correlation | 0.133 |
| | ** Correlation is significant at the 0.01 level (2-tailed). | | |

*4.7.3 Scale Results for Drinking Until Blackout Drunk*

Drinking until black out drunk was rated as being moderately high in risk with an affect score mean of 2.56 (*SD*=1.41) and Probability x Severity items had a mean of 3.68 (*SD*=1.01).

In addition to these scale items, domains of risk were rank ordered. Physical harm was generally considered the most important when evaluating risk for drinking until blackout drunk. Privacy risk and time loss risk were generally rated as being the least important to consider. See Table 31.

When participants described the list of negative outcomes, physical harm included death, alcohol poisoning, getting sick, car accident that could injure the individual or others, rape, and physical assault. Psychological risk included memory loss, acting like a fool or doing something they regret, a sense of guilt, and alcohol dependency. Social risks included loss of friends or family and loss of social standings. Other risk included concerns of committing a crime, jail, job loss, and neglect of taking care of children or pets.

**Table 31. Domain Rankings: Drinking Until Blackout Drunk**

**Domain Rankings: Drinking until Blackout Drunk**

| | Mean | Std. Deviation |
|---|---|---|
| Physical Harm Risk | 1.66 | 1.477 |
| Psychological Risk | 4.03 | 2.027 |
| Social Risk | 4.37 | 2.021 |
| Security Risk | 4.42 | 2.634 |
| Financial Risk | 5.57 | 2.176 |
| Performance Risk | 5.74 | 2.193 |
| Ethical Risk | 5.89 | 2.263 |
| Privacy Risk | 6.65 | 1.874 |
| Time loss Risk | 6.68 | 2.159 |

Items rank ordered from 1 to 9 with 1=Most Important to 9=Least Important

## 4.8 Perceived Situational Risk: Comparing Low versus High-risk Tasks

To further validate construct validity, the items were also compared between the low and high-risk task to ensure the scale was capturing the risk difference between listening to music and drinking until blackout drunk. Paired sample t-tests were used to determine if the average of the final scale items for each task/situation for the affect items and the Probability x Severity items were different. A corrected alpha of 0.0125 was used for evaluating significance. There was a significant difference in the affect scores for listening to music ($M$=5.960, $SD$=1.242) and drinking until blackout drunk ($M$=2.562, $SD$=1.450), $t(176)=21.653$, $p < .001$. There was also a significant difference in the Probability x

Severity scores for listening to music (*M*=1.365, *SD*=.665) and drinking until blackout drunk (*M*=3.682, *SD*=1.013), *t*(176)=-23.532, p < .001. See Appendix S.

### 4.9 Perceived Situational Risk: Exploratory Analysis

For perceived situational risk, correlations were calculated to explore potential relationships with: number of consequences listed, past and future usage of the technology, personality, propensity to trust, and DOSPERT. See Table 32.

**Table 32. Exploratory Correlations: Perceived Situational Risk**

| | | **Exploratory Correlations** | | | |
|---|---|---|---|---|---|
| | | Listening to Music | | Drinking Until Blackout Drunk | |
| | | Affect Score | Probability x Severity Score | Affect Score | Probability x Severity Score |
| | Number of Consequences | -0.148 | 0.033 | -0.044 | -0.076 |
| **Usage Behavior** | Past Use | 0.323** | -0.245** | 0.256** | -0.208** |
| | Future Use | 0.271** | -0.186* | 0.312** | -0.238** |
| **Personality** | Extroversion | -0.024 | 0.032 | 0.191* | -0.052 |
| | Agreeableness | 0.187* | -0.230** | -0.161* | 0.139 |
| | Conscientiousness | 0.225** | -0.354** | -0.136 | 0.135 |
| | Neuroticism | 0.097 | -0.248** | -0.007 | 0.123 |
| | Openness | 0.266** | -0.280** | -0.121 | 0.052 |
| **Propensity to Trust** | Trustworthiness | 0.072 | -0.087 | -0.019 | 0.038 |
| | Trust | 0.170* | -0.227** | -0.034 | 0.074 |
| **DOSPERT** | Ethical Risk Behavior | -0.373** | 0.458** | 0.283** | -0.210** |
| | Financial Risk Behavior | -0.351** | 0.433** | 0.190* | -0.053 |
| | Health Risk Behavior | -0.377** | 0.468** | 0.249** | -0.112 |
| | Recreational Risk Behavior | -0.343** | 0.365** | 0.169* | -0.043 |
| | Social Risk Behavior | 0.001 | 0.001 | -0.056 | 0.072 |
| | Ethical Perceived Risk | -0.009 | 0.028 | 0.005 | 0.095 |
| | Financial Perceived Risk | 0.113 | -0.06 | -0.138 | 0.101 |
| | Health Perceived Risk | 0.088 | -0.06 | -0.077 | 0.000 |

**Table 33. Continued**

| | | | | |
|---|---|---|---|---|
| **Recreational Perceived Risk** | **-0.018** | **0.017** | **-0.055** | **0.037** |
| Social Risk Perceived Risk | -0.160* | 0.211** | 0.068 | -0.009 |

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

# CHAPTER 5. FINAL SCALES

## 5.1 Perceived Relational Risk: Final Scale

As the scale items were evaluated and shown to have adequate internal validity, test-retest reliability, and construct validity, a final set of items was selected from these for the Perceived Relational Risk Scale. All the affect items were included as they all contributed to reliability for the electronic cigarette and the overall negative impact on reliability for the calculator were very minor. As producing scale items is time intensive in general, all items are being retained. Al

For the Probability x Severity items, “risky” and “disappointing” were removed for the final subset. Across both technologies, these two items either did not help or negatively impacted reliability. All other items were retained since they contributed to reliability for at least one of the technologies. See Tables 26, 27, and 28 for perceived relational risk final scale items and questions.

**Table 34. Perceived Relational Risk Final Scale: Affect Items**

**Perceived Relational Risk Final Scale: Affect Items**

| |
|---|
| **Instructions:** Rated on level of agreement with each statement: (1-Strongly disagree, 2-Disagree, 3-Somewhat disagree, 4-Neither agree nor disagree, 5-Somewhat agree, 6-Agree, 7-Strongly agree). |
| I am very concerned about using this technology. |
| I am very fearful of using this technology. |

**Table 35. Continued**

| |
|---|
| I am very anxious about using this technology. |
| I am very nervous about using this technology. |
| I am very concerned about the effects that using this technology could have on me. |
| I am very concerned about the effects that using this technology could have on people close to me (e.g., friends and family). |
| I am very concerned about the effects that using this technology could have on the general public. |
| Thinking about using this technology makes me feel very distressed. |
| Thinking about using this technology makes me feel very worried. |
| Thinking about using this technology makes me feel very frightened. |
| Thinking about using this technology does not worry me at all. |
| Using this technology is not threatening to me at all. |
| I have no concerns about the effects that using this technology could have on me. |
| I have no concerns about the effects that using this technology could have on people close to me (e.g., friends and family). |
| I have no concerns about the effects that using this technology could have on the general public. |
| I am calm when thinking about using this technology. |
| I do not feel any anxiety when thinking about using this technology. |
| I feel peaceful when thinking about using this technology. |
| I do not feel any distress when thinking about using this technology. |
| I do not feel unsettled at all when thinking about using this technology. |

**Table 36. Perceived Relational Final Scale: Probability x Severity Items**

| Perceived Relational Risk Final Scale: Probability x Severity Items |
|---|
| **Instructions:**<br><br>For the next set of questions, you are going to be reporting your beliefs about the probability and severity of outcomes from using a specific technology.<br>You have a total of 10 points to divide among the five items based on how likely you think they are to occur. The total number of points for each set of questions must equal 10.<br>Higher numbers mean a higher expected probability that type of outcome will occur.<br>Lower numbers mean a lower expected probability that type of outcome will occur.<br>A 0 means that that outcome is not expected at all.<br>When thinking about using _____, please rate your expected probability for the following outcomes: |
| The outcomes of using this technology will be completely catastrophic.<br>The outcomes of using this technology will be very catastrophic.<br>The outcome of using this technology will be somewhat catastrophic.<br>The outcomes of using this technology will be slightly catastrophic.<br>The outcomes of using this technology will not at all catastrophic. |
| A completely disastrous outcome will result from using this technology.<br>A considerably disastrous outcome will result from using this technology.<br>A moderately disastrous outcome will result from using this technology.<br>A slightly disastrous outcome will result from using this technology.<br>There will be no disastrous outcome from using this technology. |
| The outcomes of using this technology will be extremely destructive.<br>The outcomes of using this technology will be very destructive.<br>The outcomes of using this technology will be somewhat destructive.<br>The outcomes of using this technology will be slightly destructive.<br>The outcomes of using the technology will not be destructive at all. |
| Using this technology will result in extremely tragic outcomes.<br>Using this technology will result in very tragic outcomes.<br>Using this technology will result in somewhat tragic outcomes.<br>Using this technology will result in slightly tragic outcomes.<br>Using this technology will not result in any tragic outcomes at all |
| Using this technology will result in extremely severe outcomes.<br>Using this technology will result in very severe outcomes.<br>Using this technology will result in somewhat severe outcomes.<br>Using this technology will result in slightly severe outcomes.<br>Using this technology will not result in any severe outcomes. |

**Table 37. Continued.**

| |
|---|
| The outcomes of using this technology will be completely dreadful.<br>The outcomes of using this technology will be considerably dreadful.<br>The outcomes of using this technology will be moderately dreadful.<br>The outcomes of using this technology will be slightly dreadful.<br>The outcomes of using this technology will not be dreadful at all. |
| There will be completely awful outcomes as a result of using this technology.<br>There will very awful outcomes as a result of using this technology.<br>There will be somewhat awful outcomes as a result of using this technology.<br>There will be slightly awful outcomes as a result of using this technology.<br>There will be no awful outcomes at all as a result of using this technology. |
| The outcomes of using this technology will be extremely bad.<br>The outcomes of using this technology will be very bad.<br>The outcomes of using this technology will be somewhat bad.<br>The outcomes of using this technology will be slightly bad.<br>The outcomes of using this technology will not be bad at all. |
| Using this technology will result in extremely unpleasant results.<br>Using this technology will result in very unpleasant results.<br>Using this technology will result in somewhat unpleasant results.<br>Using this technology will results in slightly unpleasant results.<br>Using this technology will not result in any unpleasant results. |

**Table 38. Perceived Relational Risk Final Scale: Domain Items**

| Perceived Relational Risk Final Scale: Domain Item |
|---|
| **Part 1 Instructions:**<br><br>When someone is evaluating the risks of using ____, what order would you recommend they consider the following domains of risk specific to that technology?<br>Rank from most important (1) to consider to least important (9) to consider. |

**Table 39. Continued.**

| |
|---|
| • Physical Harm Risk (the technology could hurt or kill someone)<br>• Financial Risk (the technology could cause someone to lose money or cost a lot)<br>• Performance Risk (the technology could function improperly or not completing the tasks could cause other negative outcomes)<br>• Social Risk (the technology could influence how other people think of the person using it)<br>• Psychological Risk (the technology could cause emotional or psychological harm or not align with how the user thinks of themselves)<br>• Time Loss Risk (the technology could be late, delayed, inefficient, or require extra effort)<br>• Ethical Risk (the technology could be immoral)<br>• Privacy Risk (the technology could expose the user or their environment)<br>• Security Risk (the technology could be vulnerable to misuse or is a threat to safety) |

**Part 2 Instructions:**

For this next question, you will be evaluating if there are domains from the ranking that do not need to be considered at all. You will evaluate the domains in the order you previously ranked them. If there are domains that do not need to be considered after a certain rank, you will provide a cut-off after which items do not need to be considered by selecting the last domain in the rank ordering that needs to be considered. If all domains are important to consider, please select the final item (9).

You rank ordered the following list of items from most important (1) to least important (9) to consider when evaluating the risk of using x.

Please select the last domain which you think someone should consider when using x. For example, maybe no domains after the 4th ranked domain matter so you would select the 4th ranked domain; or, in cases where all domains could be important to consider, select the last item.

| |
|---|
| Provide the domain items listed in the rank order given by the participant for them to provide a cut-off. |

### *5.1.1 Short Scale*

As the full final scale contains 31 different questions, a shorter scale was also determined for practitioners or designers who would prefer to administer a shorter, valid scale for other contexts. For this scale, 10 affect items and 5 Probability x Severity items were selected. The 10 affect items included both positive and negative items. The selected items were determined after removing all items for both technologies which negatively impacted reliability. The 5 Probability x Severity items were chosen since they still represented varying levels of risk and all items that hurt reliability for either technology were excluded. See Appendix T.

## 5.2 Perceived Situational Risk: Final Scale

A final set of items were selected after validation. For the affect items, as there was no consistent pattern across both situations, all items were retained for the final scale. Risky was the only item removed from the set of Probability x Severity items since it did not contribute or increase reliability for either of the tasks/situations. For this final set of scale for the Perceived Situational Risk Scale, see Tables 29, 30, and 31.

**Table 40. Perceived Situational Risk Final Scale: Affect Items**

**Perceived Situational Risk Final Scale: Affect Items**

| |
|---|
| **Instructions:** Rated on level of agreement with each statement: (1-Strongly disagree, 2-Disagree, 3-Somewhat disagree, 4-Neither agree nor disagree, 5-Somewhat agree, 6-Agree, 7-Strongly agree). |
| I am very concerned about completing this task or being in this situation. |
| I am very fearful of completing this task or being in this situation. |

**Table 41. Continued**

| |
|---|
| I am very anxious about completing this task or being in this situation. |
| I am very nervous of completing this task or being in this situation. |
| I am very concerned about the effects that completing this task or being in this situation could have on me. |
| I am very concerned about the effects that completing this task or being in this situation could have on people close to me (e.g., friends and family). |
| I am very concerned about the effects that completing this task or being in this situation could have on the general public. |
| Thinking about completing this task or being in this situation makes me feel very distressed. |
| Thinking about completing this task or being in this situation makes me feel very worried. |
| Thinking about completing this task or being in this situation makes me feel very frightened. |
| Thinking about completing this task or being in this situation does not worry me at all. |
| Completing this task or being in this situation is not threatening to me at all. |
| I have no concerns about the effects that completing this task or being in this situation could have on me. |
| I have no worries about the effects that completing this task or being in this situation could have on people close to me (e.g., friends and family). |
| I have no worries about the effects that completing this task or being in this situation could have on the general public. |
| I am calm when thinking about completing this task or being in this situation. |
| I do not feel any anxiety when thinking about completing this task or being in this situation. |
| I feel peaceful when thinking about completing this task or being in this situation. |
| I do not feel any distress when thinking about completing this task or being in this situation. |
| I do not feel unsettled at all when thinking about completing this task or being in this situation. |

**Table 42. Perceived Situational Risk Final Scale: Probability x Severity Items**

| Perceived Situational Risk Final Scale: Probability x Severity Items |
|---|
| **Instructions:** |
| For the next set of questions, you are going to be reporting your beliefs about the probability and severity of outcomes from completing this task or being in this situation.<br>You have a total of 10 points to divide among the five items based on how likely you think they are to occur. The total number of points for each set of questions must equal 10.<br>Higher numbers mean a higher expected probability that type of outcome will occur.<br>Lower numbers mean a lower expected probability that type of outcome will occur.<br>A 0 means that that outcome is not expected at all.<br>When thinking about ____________, please rate your expected probability for the following outcomes: |
| The outcomes of completing this task or being in this situation will be completely catastrophic.<br>The outcomes of completing this task or being in this situation will be very catastrophic.<br>The outcome of completing this task or being in this situation will be somewhat catastrophic.<br>The outcomes of completing this task or being in this situation will be slightly catastrophic.<br>The outcomes of completing this task or being in this situation will not at all catastrophic. |
| A completely disastrous outcome will result from completing this task or being in this situation.<br>A considerably disastrous outcome will result from completing this task or being in this situation.<br>A moderately disastrous outcome will result from completing this task or being in this situation.<br>A slightly disastrous outcome will result from completing this task or being in this situation.<br>There will be no disastrous outcome from completing this task or being in this situation. |
| The outcomes of completing this task or being in this situation will be extremely destructive.<br>The outcomes of completing this task or being in this situation will be very destructive.<br>The outcomes of completing this task or being in this situation will be somewhat destructive.<br>The outcomes of completing this task or being in this situation will be slightly destructive.<br>The outcomes of completing this task or being in this situation will not be destructive at all. |
| Completing this task or being in this situation will result in extremely tragic outcomes.<br>Completing this task or being in this situation will result in very tragic outcomes.<br>Completing this task or being in this situation will result in somewhat tragic outcomes.<br>Completing this task or being in this situation will result in slightly tragic outcomes.<br>Completing this task or being in this situation will not result in any tragic outcomes at all. |
| Completing this task or being in this situation will result in extremely severe outcomes.<br>Completing this task or being in this situation will result in very severe outcomes.<br>Completing this task or being in this situation will result in somewhat severe outcomes.<br>Completing this task or being in this situation will result in slightly severe outcomes.<br>Completing this task or being in this situation will not result in any severe outcomes. |

**Table 43. Continued**

| |
|---|
| The outcomes of completing this task or being in this situation will be completely dreadful.<br>The outcomes of completing this task or being in this situation will be considerably dreadful.<br>The outcomes of completing this task or being in this situation will be moderately dreadful.<br>The outcomes of completing this task or being in this situation will be slightly dreadful.<br>The outcomes of completing this task or being in this situation will not be dreadful at all. |
| There will be completely awful outcomes as a result of completing this task or being in this situation.<br>There will very awful outcomes as a result of completing this task or being in this situation.<br>There will be somewhat awful outcomes as a result of completing this task or being in this situation.<br>There will be slightly awful outcomes as a result of completing this task or being in this situation.<br>There will be no awful outcomes at all as a result of completing this task or being in this situation. |
| The outcomes of completing this task or being in this situation will be extremely bad.<br>The outcomes of completing this task or being in this situation will be very bad.<br>The outcomes of completing this task or being in this situation will be somewhat bad.<br>The outcomes of completing this task or being in this situation will be slightly bad.<br>The outcomes of completing this task or being in this situation will not be bad at all. |
| Completing this task or being in this situation will result in extremely unpleasant results.<br>Completing this task or being in this situation will result in very unpleasant results.<br>Completing this task or being in this situation will result in somewhat unpleasant results.<br>Completing this task or being in this situation will results in slightly unpleasant results.<br>Completing this task or being in this situation will not result in any unpleasant results. |
| There will be completely disappointing outcomes as a result of completing this task or being in this situation.<br>There will be considerably disappointing outcomes as a result of completing this task or being in this situation.<br>There will be moderately disappointing outcomes as a result of completing this task or being in this situation.<br>There will be slightly disappointing outcomes as a result of completing this task or being in this situation.<br>There will be no disappointing outcomes as a result of completing this task or being in this situation |

## Table 44. Perceived Situational Risk Final Scale: Domain Item

**Perceived Situational Risk Final Scale: Domain Item**

**Part 1 Instructions:**

When someone is evaluating the risks of doing ____, what order would you recommend they consider the following domains of risk specific to that task or situation?
Rank from most important (1) to consider to least important (9) to consider.

- Physical Harm Risk (the task or situation could hurt or kill someone)
- Financial Risk (the task or situation could cause someone to lose money or cost a lot)
- Performance Risk (if improperly or not completed the task or situation could cause other negative outcomes)
- Social Risk (the task or situation could influence how other people think of the person doing the task or in the situation)
- Psychological Risk (the task or situation could cause emotional or psychological harm or not align with how the person thinks of themselves)
- Time Loss Risk (the task or situation is inefficient or requires extra effort)
- Ethical Risk (the task or situation could be immoral)
- Privacy Risk (the task or situation could expose the user or their environment)
- Security Risk (the task or situation could be vulnerable to misuse or is a threat to safety)

**Part 2 Instructions:**

For this next question, you will be evaluating if there are domains from the ranking that do not need to be considered at all. You will evaluate the domains in the order you previously ranked them. If there are domains that do not need to be considered after a certain rank, you will provide a cut-off after which items do not need to be considered by selecting the last domain in the rank ordering that needs to be considered. If all domains are important to consider, please select the final item (9).

You rank ordered the following list of items from most important (1) to least important (9) to consider when evaluating the risk of doing x.

Please select the last domain which you think someone should consider when doing x. For example, maybe no domains after the 4th ranked domain matter so you would select the 4th ranked domain; or, in cases where all domains could be important to consider, select the last item

Provide the domain items listed in the rank order given by the participant for them to provide a cut-off.

### *5.2.1 Short Scale*

In addition to the full scale, a shorter scale was also developed for those who do not wish to administer the full set of items due to time constraints or task demands. Ten affect items were selected (five positive and five negative). The items were selected from a list of items after all items that either did not load high onto the factors or decreased internal reliability were removed. For the Probability x Severity items, a set of five items were selected that varied in levels of risk. In addition to risky, disappointing was also excluded from selection as this item decreased internal reliability for the low-risk task. See Appendix U.

# CHAPTER 6. DISCUSSION

Perceived relational risk and perceived situational risk are key components of understanding users' trust and interactions with technology. However, no measures previously existed to explore perceived relational risk and perceived situational risk. Because no validated measures existed, these constructs' relationship to trust and technology adoption or usage could not validly be explored previous to this study. This study developed and validated scale items to measure perceived relational risk and perceived situational risk. This development included the item creation and evaluation to create scales that are internally valid, reliable over time, and accurately measure separate perceived risk constructs.

## 6.1 Perceived Relational Risk: Scale Evaluation

The results from this dissertation demonstrate that both the affect and Probability x Severity items are internally reliable. For affect, all items loaded onto the main factor with a high loading (George & Mallery, 2003). A conservative cut-off of 0.7 was utilized for determining internal reliability for each technology separately (i.e., within the low and high-risk technologies). For the low-risk technology, the items that did not load about 0.7 were all positively worded. Typically, perceived risk is measured as how much an individual believes the risk exists and does not measure the absence of risk, which may explain some of the difference in the loadings. However, for the higher risk technology, all the items were retained for both the loadings on the factor, as well as for the reliability analysis. This suggests that when risk exists, the positive items do effectively measure the same construct as the negatively worded items.

For the Probability x Severity items, items were removed that either decreased reliability or did contribute to the reliability (e.g., even if the item was removed reliability would stay the same). For the low-risk items, “disappointing” was the only one that lowered reliability (even though this decrease was very small: 0.01). For the high-risk items, “risky” was the only item that decreased reliability; again it was very small, only 0.01. Even if all items were retained, the internal reliability for the Probability x Severity items was excellent. However, the terms “risky” and “disappointing” may not be the most effective terms for measuring perceived relational risk as they did not contribute or help to distinctly measure perceived risk for both technologies. “Dreadful” and “catastrophic” may not contribute to reliability depending on the technology being measured as “dreadful” did not contribute to reliability for calculator and “catastrophic” did not contribute to reliability for an electronic cigarette.

In addition to the internal reliability of the scale items, the test-retest reliability of the Perceived Relational Risk scale was evaluated. When controlling for outliers, the test-retest reliability was at a minimum good for item sets for both the high-risk technology and low-risk technology. This demonstrates how these scale items can reliably measure an individual’s perception of risk of using a technology at different time points.

Construct validity was explored through correlating with various scales. The items also effectively found measurable differences between risk for the specifically evaluated low-risk and high-risk technologies (i.e., differences were expected in risk levels for calculator and electronic cigarette, and did occur). These results support that the scale items are effectively measuring perceived risk by demonstrating moderate to strong relationships across both technologies and item types (affect; Probability x Severity ) with the affect, severity, and susceptibility components of the General Perceived Risk Measure (Wilson et al., 2019). As hypothesized, there was not a strong relationship between the exposure component of the General Perceived Risk Measure with either components of the scale for calculator or electronic cigarette because that scale (Wilson et al., 2019) was developed to measure perceived risk of hazards, not individual technology use. For the calculator, there was no relationship at all; there was only a weak relationship with exposure for electronic cigarette. This suggest that while exposure may sometimes be related, it is **not** a key component of measuring perceived relational risk.

The automation trust scale and PANAS were also used to evaluate construct validity. The construct validity results demonstrated that the scale were strongly related to distrust and weakly or moderately related to trust. As the scale is not intended to measure trust, this relationship is expected. Previous studies have not differentiated distrust and trust, and this correlation however suggest that perceived relational risk is strongly related to distrust, but not trust. Although previous research has not explored PANAS's relationship to perceived relational risk, it was expected that negative affect would be weakly to moderately correlated to the scale results; this hypothesis was supported.

Scale construct validity for both the affect items and the Probability x Severity items was also found in the comparison of the two technologies. There were significant differences for the affect and Probability x Severity items between the calculator and electronic cigarette: the calculator was perceived as less risky.

In addition to the scale validation, exploratory analyses were completed to evaluate whether or not Perceived Relational Risk was related to the number of consequences individuals could list, usage of the technology, personality, propensity to trust, and DOSPERT. The number of consequences were not related to perceived relational risk. Individuals were able to list negative consequences when asked regardless of how risky they rated the technology. Usage of the technology was only correlated with the perceived relational risk scores reported for electronic cigarette. Individuals who had higher usage of an electronic cigarette also perceived a lower risk of using the technology. This finding supports previous research demonstrating individuals who engage in risky behaviors have a lower perceived risk of that behavior (Weber & Milliman, 1997). There was also a moderate relationship between some risk behaviors (ethical, financial, health, and recreational, but not social) and calculator perceived risk. Lower relationships between calculator use and perceived relational risk may be a product of these individual’s lower risk behaviors and the less risky technology. Although other correlations existed, they were weak and/or not consistent across both scales and both items.

## 6.2 Perceived Relational Risk: Scale Results

### *6.2.1 Calculator*

As calculators were chosen as the low-risk technology for this study, it is not surprising that results support that using a calculator has very little risk and that any negative outcomes were rated as unlikely to happen. The domain rankings provide additional insight into the participants’ perceived risk and demonstrate that performance errors, such as a miscalculation or the batteries failing, and financial risks, such as the cost of a sophisticated calculator, are considered most important for the risk evaluation of using a calculator.

### *6.2.2 Electronic Cigarette*

Using an electronic cigarette was rated as moderately risky. As electronic cigarettes are still commonly used, it was not expected that the results would rate the device as being extremely risky. The primary domains of risk that were rated as being considered were the physical harm of using the device (both caused from normal usage or malfunction of the technology) and the psychological risk (addiction or dependency). In addition, social risk was a concern as many participants discussed how the device might annoy others or cause the loss of relationships.

## 6.3 Perceived Situational Risk: Scale Evaluation

Perceived risk has been previously measured in hazardous situations (e.g., flooding), but it has not been measured for how risky certain tasks are. These scale items were developed to begin to explore perceived risk in a wider variety of tasks and situations.

Both the affect and Probability x Severity items had excellent internal reliability. For the affect items, based on a .7 cut off for the factor analysis, three positively worded items were removed for low-risk task/situation and one negatively worded item was removed for high-risk task/situation. Although a conservative cut-off was used for the scale evaluation, all items highly loaded onto the main factor. It was unsurprising that the positively worded items did not load as highly as the negative items; however, it was surprising that a single negatively worded item did not load as highly. This item assessed how nervous an individual felt of being in a situation or completing the task. It is possible that the nervousness did not accurately capture the negative feelings associated to the specific situation of being black out drunk.

For the Probability x Severity items, the “risky” item did not increase reliability for the low-risk task/situation and actually diminished reliability for the high-risk task. However, the decrease in reliability was very minor (0.02). “Disappointing” hurt reliability by only 0.01 for listening to music. This suggest that for certain tasks, disappointing may be an effective item for measuring perceived situational risk.

The items of the Perceived Situational Risk Scale also had good test-retest reliability. After removing outliers, the affect items for both tasks/situations were acceptable (drinking until blackout drunk) to good (listening to music). For the Probability x Severity items, the test-retest reliability was good (drinking until blackout drunk) to excellent (listening to music). This demonstrates that these scale items effectively measure individual attitudes at different time points and that those attitudes have some degree of stability.

To ensure that the items were also measuring perceived risk, the items were compared to an existing perceived risk measure and PANAS. The findings were as expected: both sets of items for both tasks/situations were moderately to strongly related with the affect, severity, and susceptibility components of the General Perceived Risk Scale. Again, as the scale was developed for measuring perceived risk in hazards, it was expected that the exposure component would not be related, and this was found to be true. The only relationship found was a weak correlation with affect items for the situation of drinking until blackout drunk.

The negative PANAS items were also hypothesized to have a weak to moderate relationship with the Perceived Situational Risk scale. This finding was supported for the low-risk task (listening to music). However, this hypothesis was only supported for the affect items for the high-risk task. It is possible that despite being chosen as a high-risk task, it did not evoke negative emotions. In this study, the scale did not capture the specific relationship between negative affect and perceived situational risk for both the high and low-risk situations. This does not imply an ineffective measurement of affect for perceived situational risk, but instead highlights a necessary area for more work to be done.

Construct validity was also evaluated by comparing the results of the scale for the low-risk task/situation to the high-risk task/situation to ensure the scale was capturing the differences. The results support that the scale validly captured the differences in risk for each with significant differences in scores for both the affect items and the Probability x Severity items.

Exploratory analyses were conducted to evaluate Perceived Situational Risks' relationship with number of negative outcomes, engagement in the task, personality, propensity to trust, and DOSPERT. Usage was weakly related to perceived situational risk for both tasks/situations and all additionally evaluated scales. This finding was interesting because this pattern was only observed with one technology (Section 4.9). This suggests that for tasks/situations, an individual's engagement in the task may be more strongly related to their perceived risk because these are behaviors they choose to engage in. For technologies, such as the calculator, or other tasks that are mandated (e.g., a job requirement), the usage may be less related to their perceived risk since the usage is required.

Similar to the perceived relational risk measure, perceived situational risk was moderately related to ethical, financial, health, and recreational risk behavior only for the low-risk task. These findings suggest that either there is something unique about low-risk tasks or technologies and risk behavior, or that this relationship may just exist because this individual, on average, does not engage in risky behavior (and listening to music is inherently not risky). Ethical risk behavior was also related weakly to Perceived Situational Risk of drinking until blackout drunk. Further exploration of these findings are needed to truly understand if this is a meaningful relationship to measure or not.

## 6.4 Perceived Situational Risk: Scale Results

### *6.4.1 Listening to Music*

Listening to music was rated as being very low in risk. The risk domains that individuals perceived as being important to consider when evaluating the risk of listening to music were psychological and social. When listing the number of negative outcomes, participants discussed music bringing up bad memories and causing a poor mood, as well as concerns of being judged by others by one's taste in music.

### *6.4.2 Drinking Until Blackout Drunk*

Drinking until blackout drunk was considered risky with physical harm being the most important one considered. Although time loss and privacy risks were rated as being the least important to consider, the other risk domains were moderately ranked with great variability between participants. This suggested that for the situation of drinking until blackout drunk, the domains of risk that are important to consider are not very consistent between participants.

## 6.5 Future Directions and Limitations

Now that scales have been developed and validated for perceived relational risk and perceived situational risk, research should be conducted to evaluate these types of perceived risk, their relationships with each other, and their relationship with trust. The unique relationship of perceived relational risk with distrust versus trust should also be explored further. Previous studies have found a strong relationship between trust and perceived relational risk, and have suggested they have a reciprocal effect on each other. However, this study found that the relationship between perceived relational risk and trust was only strong with distrust and moderate with trust. As validated scales now exist to properly evaluate these constructs, further research should thoroughly explore the relationships between trust, distrust, and perceived risk.

Future work should also evaluate the scale items and loading for other types of technologies. This study evaluated two types of technologies that were low and moderate risk. Additionally, domains of risk should be evaluated to determine if additional domains or subdomains are needed for accurately evaluating risks of using technology.

This study found no relationship between the high-risk situation (drinking until blackout drunk) and negative affect. Future work should evaluate whether there are certain task/situational characteristics which impact the relationship between perceived risk and negative affect. Similar to perceived relational risk, further validation with other tasks/situations would improve understanding of the broad applicability of the scale. Domains should also be further researched within a variety of tasks and situations to see if there are any others critical ones that emerge as for perceived situational risk evaluation.

This study began the investigation of the relationship between perceived risk (both relational and situational) with usage, list of negative outcomes, PANAS, propensity to trust, personality, and DOSPERT. Although all of these could be further explored, this research recommends the focus on future evaluation be on the relationship between DOSPERT and both perceived relational risk and perceived situational risk. For both the low-risk technology and task, several of the risk behaviors were moderately correlated with the risk scores. However, it is unclear as to why this relationship exist; additional studies should explicate whether this is a meaningful relationship.

# CHAPTER 7. CONCLUSION

This dissertation developed and validated scales of perceived relational risk and perceived situational risk. Validated scales for these types of perceived risk have not existed previous to this dissertation. These are the first perceived risk scales to have the test-retest reliability evaluated, and where a more rigorous approach to evaluating the construct validity of the scales was taken through both correlational and comparison methods. The final scales will allow for improved understanding of theory and be useful in practical applications. Also, the other results also contribute to theoretical components of perceived risk, as well as practical contributions to understand user interactions and improve design.

## 7.1 Theoretical Contributions

There were several theoretical contributions from this dissertation. Overall, this study demonstrated that for measurements of perceived risk (relational or situational), affect can be effectively assessed through both positively and negatively-worded items, despite previous measurement of perceived risk with only negative items (e.g., only validating the existence of risk and not the lack of risk). In addition, the developed scales supported that when measuring perceived risk for individual tasks or use of technologies, exposure to the event is not effective for measuring perceptions of risk (Weber & Milliman, 1997). This helps differentiate perceived risk in contexts where the individual controls their exposure, compared to perceived risk in uncontrollable hazards.

This study was the first to measure perceived relational risk and trust with validated scales for both constructs. It is the first study that found a stronger relationship with distrust than trust. This dissertation provides further evidence that trust and distrust are unique constructs, and demonstrates that perceived relational risk is not simply the reverse of trust. Contrary to the concept that they are different sides of the same coin, this dissertation provides evidence that they are more unique constructs. This study also demonstrated that negative affect is strongly related to perceived relational risk.

With these scales, theories of trust and understanding perceived risk within human-automation interaction can be further developed. These scales can now be incorporated to future studies to understand the effect of perceived relational risk and perceived situational risk on user behaviors, trust, and interactions.

## 7.2 Practical Contributions

There are also practical contributions from the study. First, the scales can (and should) be utilized when evaluating user perceptions of technologies or tasks so practitioners can have a deeper understanding of the users' concerns. When comparing how a user completes a specific task with a specific technology, the measures can also be used to evaluate whether the lack of use is due to perceived risks related to the technology or to the task.

In addition, this study has demonstrated that the probability and severity of risks can be evaluated effectively within one item by using a weighted Likert score. As previous measures have separated these constructs (Wilson et al., 2019), this method could be utilized by other perceived risk measures as well so that perceived risk measures can account for perceptions of risk beyond just the extremes.

## 7.3 Conclusion

Through the development of these scales, this dissertation provided validity for the newly identified concepts of perceived situational and relational risk, as well as providing the scientific community with the means of measuring them. These measures can be used to improve construct measurement, and complete cross-study comparisons. Models of trust that incorporate perceived risk should now evaluate perceived risk through these scales to validate or inform model development.

# APPENDIX A. RISK WORD RANKINGS

## A.1 Participants Descriptors

Twenty-two participants participated. They were recruited through SONA at Georgia Institute of Technology and received 0.5 hours of credit for participation. They had a mean age of 19.63 (SD=1.53). The participants were evenly split between male and female (11 each).

## A.2 Ranking Data

1=Most Risky to 15=Least Risky

**Table 45. Risk Word Ranking**

| Risk Related Word | Mean | SD |
|---|---|---|
| Catastrophic | 1.88 | 0.83 |
| Cataclysmic | 3.06 | 3.07 |
| Disastrous | 4.18 | 1.71 |
| Ruinous | 4.82 | 2.25 |
| Calamitous | 5.18 | 3.38 |
| Destructive | 6.12 | 2.60 |
| Tragic | 6.82 | 2.87 |
| Severe | 7.00 | 2.87 |
| Dreadful | 9.35 | 2.48 |
| Appalling | 10.24 | 3.30 |
| Awful | 11.24 | 2.99 |
| Terrible | 11.24 | 1.73 |
| Horrible | 11.24 | 2.57 |
| Bad | 14.29 | 1.09 |
| Unpleasant | 14.41 | 1.89 |

# APPENDIX B. PERCEIVED RELATIONAL RISK

## B.1 Affect Items

Rated on level of agreement with each statement: (1-Strongly disagree, 2-Disagree, 3-Somewhat disagree, 4-Neither agree nor disagree, 5-Somewhat agree, 6-Agree, 7-Strongly agree).

Negative Items

1. I am very concerned about using this technology.
2. I am very fearful of using this technology.
3. I am very anxious about using this technology.
4. I am very nervous about using this technology.
5. I am very concerned about the effects that using this technology could have on me.
6. I am very concerned about the effects that using this technology could have on people close to me (e.g., friends and family).
7. I am very concerned about the effects that using this technology could have on the general public.
8. Thinking about using this technology makes me feel very distressed.
9. Thinking about using this technology makes me feel very worried.
10. Thinking about using this technology makes me feel very frightened.

Positive items

1. Thinking about using this technology does not worry me at all.
2. Using this technology is not threatening to me at all.
3. I have no concerns about the effects that using this technology could have on me.

4. I have no concerns about the effects that using this technology could have on people close to me (e.g., friends and family).
5. I have no concerns about the effects that using this technology could have on the general public.
6. I am calm when thinking about using this technology.
7. I do not feel any anxiety when thinking about using this technology.
8. I feel peaceful when thinking about using this technology.
9. I do not feel any distress when thinking about using this technology.
10. I do not feel unsettled at all when thinking about using this technology.

## B.2 Probability x Severity Items

For the next set of questions, you are going to be reporting your beliefs about the probability and severity of outcomes from using a specific technology.

You have a total of 10 points to divide among the five items based on how likely you think they are to occur. The total number of points for each set of questions must equal 10.

> Higher numbers mean a higher expected probability that type of outcome will occur.
>
> Lower numbers mean a lower expected probability that type of outcome will occur.
>
> A 0 means that that outcome is not expected at all.

When thinking about using _____, please rate your expected probability for the following outcomes:

1. Risky

i. The outcomes of using this technology will be extremely risky.

ii. The outcomes of using this technology will be very risky.

iii. The outcome of using this technology will be somewhat risky.

iv. The outcomes of using this technology will be slightly risky.

v. The outcomes of using this technology will not be risky at all.

2. Catastrophic

i. The outcomes of using this technology will be completely catastrophic.

ii. The outcomes of using this technology will be very catastrophic.

iii. The outcome of using this technology will be somewhat catastrophic.

iv. The outcomes of using this technology will be slightly catastrophic.

v. The outcomes of using this technology will not at all catastrophic.

3. Disastrous

i. A completely disastrous outcome will result from using this technology.

ii. A considerably disastrous outcome will result from using this technology.

iii. A moderately disastrous outcome will result from using this technology.

iv. A slightly disastrous outcome will result from using this technology.

v. There will be no disastrous outcome from using this technology.

4. Destructive

i. The outcomes of using this technology will be extremely destructive.

ii. The outcomes of using this technology will be very destructive.

iii. The outcomes of using this technology will be somewhat destructive.

iv. The outcomes of using this technology will be slightly destructive.

v. The outcomes of using the technology will not be destructive at all.

5. Tragic

i. Using this technology will result in extremely tragic outcomes.

ii. Using this technology will result in very tragic outcomes.

iii. Using this technology will result in somewhat tragic outcomes.

iv. Using this technology will result in slightly tragic outcomes.

v. Using this technology will not result in any tragic outcomes at all.

6. Severe

i. Using this technology will result in extremely severe outcomes.

ii. Using this technology will result in very severe outcomes.

iii. Using this technology will result in somewhat severe outcomes.

iv. Using this technology will result in slightly severe outcomes.

v. Using this technology will not result in any severe outcomes.

7. Dreadful

i. The outcomes of using this technology will be completely dreadful.

ii. The outcomes of using this technology will be considerably dreadful.

iii. The outcomes of using this technology will be moderately dreadful.

iv. The outcomes of using this technology will be slightly dreadful.

v. The outcomes of using this technology will not be dreadful at all.

8. Awful

i. There will be completely awful outcomes as a result of using this technology.

ii. There will very awful outcomes as a result of using this technology.

iii. There will be somewhat awful outcomes as a result of using this technology.

iv. There will be slightly awful outcomes as a result of using this technology.

v. There will be no awful outcomes at all as a result of using this technology.

9. Bad

i. The outcomes of using this technology will be extremely bad.
ii. The outcomes of using this technology will be very bad.
iii. The outcomes of using this technology will be somewhat bad.
iv. The outcomes of using this technology will be slightly bad.
v. The outcomes of using this technology will not be bad at all.

10. Unpleasant

i. Using this technology will result in extremely unpleasant results.
ii. Using this technology will result in very unpleasant results.
iii. Using this technology will result in somewhat unpleasant results.
iv. Using this technology will results in slightly unpleasant results.
v. Using this technology will not result in any unpleasant results.

11. Disappointing

i. There will be completely disappointing outcomes as a result of using this technology.
ii. There will be considerably disappointing outcomes as a result of using this technology.
iii. There will be moderately disappointing outcomes as a result of using this technology.
iv. There will be slightly disappointing outcomes as a result of using this technology.
v. There will be no disappointing outcomes as a result of using this technology.

## B.3 Domain Items

When someone is evaluating the risks of using ____, what order would you recommend they consider the following domains of risk specific to that technology?

Rank from **most important (1)** to consider to **least important (9)** to consider.

- Physical Harm Risk (the technology could hurt or kill someone)
- Financial Risk (the technology could cause someone to lose money or cost a lot)
- Performance Risk (the technology could function improperly or not completing the tasks could cause other negative outcomes)
- Social Risk (the technology could influence how other people think of the person using it)
- Psychological Risk (the technology could cause emotional or psychological harm or not align with how the user thinks of themselves)
- Time Loss Risk (the technology could be late, delayed, inefficient, or require extra effort)
- Ethical Risk (the technology could be immoral)
- Privacy Risk (the technology could expose the user or their environment)
- Security Risk (the technology could be vulnerable to misuse or is a threat to safety)

For this next question, you will be evaluating if there are domains from the ranking that do not need to be considered at all. You will evaluate the domains in the order you previously ranked them. If there are domains that do not need to be considered after a certain rank, you will provide a cut-off after which items do not need to be considered by selecting the last domain in the rank ordering that needs to be considered. If all domains are important to consider, please select the final item (9).

You rank ordered the following list of items from most important (1) to least important (9) to consider when evaluating the risk of **using x.**

Please select the last domain which you think someone should consider **when using x.** For example, maybe no domains after the 4th ranked domain matter so you would select the 4th ranked domain; or, in cases where all domains could be important to consider, select the last item.

- Physical Harm Risk (the technology could hurt or kill someone)
- Financial Risk (the technology could cause someone to lose money or cost a lot)
- Performance Risk (the technology could function improperly or not completing the tasks could cause other negative outcomes)
- Social Risk (the technology could influence how other people think of the person using it)
- Psychological Risk (the technology could cause emotional or psychological harm or not align with how the user thinks of themselves)
- Time Loss Risk (the technology could be late, delayed, inefficient, or require extra effort)
- Ethical Risk (the technology could be immoral)
- Privacy Risk (the technology could expose the user or their environment)
- Security Risk (the technology could be vulnerable to misuse or is a threat to safety)

# APPENDIX C. PERCEIVED SITUATIONAL RISK

## C.1 Affect Items

Rated on level of agreement with each statement: (1-Strongly disagree, 2-Disagree, 3-Somewhat disagree, 4-Neither agree nor disagree, 5-Somewhat agree, 6-Agree, 7-Strongly agree).

Negative Items

1. I am very concerned about completing this task or being in this situation.
2. I am very fearful of completing this task or being in this situation.
3. I am very anxious about completing this task or being in this situation.
4. I am very nervous of completing this task or being in this situation.
5. I am very concerned about the effects that completing this task or being in this situation could have on me.
6. I am very concerned about the effects that completing this task or being in this situation could have on people close to me (e.g., friends and family).
7. I am very concerned about the effects that completing this task or being in this situation could have on the general public.
8. Thinking about completing this task or being in this situation makes me feel very distressed.
9. Thinking about completing this task or being in this situation makes me feel very worried.
10. Thinking about completing this task or being in this situation makes me feel very frightened.

Positive items

1. Thinking about completing this task or being in this situation does not worry me at all.
2. Completing this task or being in this situation is not threatening to me at all.
3. I have no concerns about the effects that completing this task or being in this situation could have on me.
4. I have no worries about the effects that completing this task or being in this situation could have on people close to me (e.g., friends and family).
5. I have no worries about the effects that completing this task or being in this situation could have on the general public.
6. I am calm when thinking about completing this task or being in this situation.
7. I do not feel any anxiety when thinking about completing this task or being in this situation.
8. I feel peaceful when thinking about completing this task or being in this situation.
9. I do not feel any distress when thinking about completing this task or being in this situation.
10. I do not feel unsettled at all when thinking about completing this task or being in this situation.

### C.2 Probability x Severity Items

For the next set of questions, you are going to be reporting your beliefs about the probability and severity of outcomes from using a specific technology.

You have a total of 10 points to divide among the five items based on how likely you think they are to occur. The total number of points for each set of questions must equal 10.

Higher numbers mean a higher expected probability that type of outcome will occur.

Lower numbers mean a lower expected probability that type of outcome will occur.

A 0 means that that outcome is not expected at all.

When thinking about using _____, please rate your expected probability for the following outcomes:

1. Risky

i. The outcomes of completing this task or being in this situation will be extremely risky.

ii. The outcomes of completing this task or being in this situation will be very risky.

iii. The outcome of completing this task or being in this situation will be somewhat risky.

iv. The outcomes of completing this task or being in this situation will be slightly risky.

v. The outcomes of completing this task or being in this situation will not be risky at all.

2. Catastrophic

i. The outcomes of completing this task or being in this situation will be completely catastrophic.

ii. The outcomes of completing this task or being in this situation will be very catastrophic.

iii. The outcome of completing this task or being in this situation will be somewhat catastrophic.

iv. The outcomes of completing this task or being in this situation will be slightly catastrophic.

v. The outcomes of completing this task or being in this situation will not at all catastrophic.

3. Disastrous

i. A completely disastrous outcome will result from completing this task or being in this situation.

ii. A considerably disastrous outcome will result from completing this task or being in this situation.

iii. A moderately disastrous outcome will result from completing this task or being in this situation.

iv. A slightly disastrous outcome will result from completing this task or being in this situation.

v. There will be no disastrous outcome from completing this task or being in this situation.

4. Destructive

i. The outcomes of completing this task or being in this situation will be extremely destructive.

ii. The outcomes of completing this task or being in this situation will be very destructive.

iii. The outcomes of completing this task or being in this situation will be somewhat destructive.

iv. The outcomes of completing this task or being in this situation will be slightly destructive.

v. The outcomes of completing this task or being in this situation will not be destructive at all.

5. Tragic

i. Completing this task or being in this situation will result in extremely tragic outcomes.

ii. Completing this task or being in this situation will result in very tragic outcomes.

iii. Completing this task or being in this situation will result in somewhat tragic outcomes.

iv. Completing this task or being in this situation will result in slightly tragic outcomes.

v. Completing this task or being in this situation will not result in any tragic outcomes at all.

6. Severe

i. Completing this task or being in this situation will result in extremely severe outcomes.

ii. Completing this task or being in this situation will result in very severe outcomes.

iii. Completing this task or being in this situation will result in somewhat severe outcomes.

iv. Completing this task or being in this situation will result in slightly severe outcomes.

v. Completing this task or being in this situation will not result in any severe outcomes.

7. Dreadful

i. The outcomes of completing this task or being in this situation will be completely dreadful.

ii. The outcomes of completing this task or being in this situation will be considerably dreadful.

iii. The outcomes of completing this task or being in this situation will be moderately dreadful.

iv. The outcomes of completing this task or being in this situation will be slightly dreadful.

v. The outcomes of completing this task or being in this situation will not be dreadful at all.

8. Awful

i. There will be completely awful outcomes as a result of completing this task or being in this situation.

ii. There will very awful outcomes as a result of completing this task or being in this situation.

iii. There will be somewhat awful outcomes as a result of completing this task or being in this situation.

iv. There will be slightly awful outcomes as a result of completing this task or being in this situation.

v. There will be no awful outcomes at all as a result of completing this task or being in this situation.

9. Bad

i. The outcomes of completing this task or being in this situation will be extremely bad.
ii. The outcomes of completing this task or being in this situation will be very bad.
iii. The outcomes of completing this task or being in this situation will be somewhat bad.
iv. The outcomes of completing this task or being in this situation will be slightly bad.
v. The outcomes of completing this task or being in this situation will not be bad at all.

10. Unpleasant

i. Completing this task or being in this situation will result in extremely unpleasant results.
ii. Completing this task or being in this situation will result in very unpleasant results.
iii. Completing this task or being in this situation will result in somewhat unpleasant results.
iv. Completing this task or being in this situation will results in slightly unpleasant results.
v. Completing this task or being in this situation will not result in any unpleasant results.

11. Disappointing

i. There will be completely disappointing outcomes as a result of completing this task or being in this situation.
ii. There will be considerably disappointing outcomes as a result of completing this task or being in this situation.
iii. There will be moderately disappointing outcomes as a result of completing this task or being in this situation.
iv. There will be slightly disappointing outcomes as a result of completing this task or being in this situation.
v. There will be no disappointing outcomes as a result of completing this task or being in this situation.

## C.3 Domain Items

When someone is evaluating the risks of doing ____, what order would you recommend they consider the following domains of risk specific to that task or situation?

Rank from **most important (1)** to consider to **least important (9)** to consider.

- Physical Harm Risk (the task or situation could hurt or kill someone)
- Financial Risk (the task or situation could cause someone to lose money or cost a lot)
- Performance Risk (if improperly or not completed the task or situation could cause other negative outcomes)
- Social Risk (the task or situation could influence how other people think of the person doing the task or in the situation)

- Psychological Risk (the task or situation could cause emotional or psychological harm or not align with how the person thinks of themselves)
- Time Loss Risk (the task or situation is inefficient or requires extra effort)
- Ethical Risk (the task or situation could be immoral)
- Privacy Risk (the task or situation could expose the user or their environment)
- Security Risk (the task or situation could be vulnerable to misuse or is a threat to safety)

For this next question, you will be evaluating if there are domains from the ranking that do not need to be considered at all. You will evaluate the domains in the order you previously ranked them. If there are domains that do not need to be considered after a certain rank, you will provide a cut-off after which items do not need to be considered by selecting the last domain in the rank ordering that needs to be considered. If all domains are important to consider, please select the final item (9).

You rank ordered the following list of items from most important (1) to least important (9) to consider when evaluating the risk of **doing x.**

Please select the last domain which you think someone should consider **when doing x.** For example, maybe no domains after the 4th ranked domain matter so you would select the 4th ranked domain; or, in cases where all domains could be important to consider, select the last item

- Physical Harm Risk (the task or situation could hurt or kill someone)

- Financial Risk (the task or situation could cause someone to lose money or cost a lot)
- Performance Risk (if improperly or not completed the task or situation could cause other negative outcomes)
- Social Risk (the task or situation could influence how other people think of the person doing the task or in the situation)
- Psychological Risk (the task or situation could cause emotional or psychological harm or not align with how the person thinks of themselves)
- Time Loss Risk (the task or situation is inefficient or requires extra effort)
- Ethical Risk (the task or situation could be immoral)
- Privacy Risk (the task or situation could expose the user or their environment)
- Security Risk (the task or situation could be vulnerable to misuse or is a threat to safety)

# APPENDIX D. TECHNOLOGY RANK ORDERING

## D.1 Participants Descriptors

Twenty-two participants participated. They were recruited through SONA at Georgia Institute of Technology and received 0.5 hours of credit for participation. They had a mean age of 19.63 (SD=1.53). The participants were evenly split between male and female (11 each).

## D.2 Ranking Data

1=Most Risky to 15=Least Risky

**Table 46. Technology Ranking**

| Technology | Mean | SD |
|---|---|---|
| Brain Implants | 2.39 | 1.84 |
| Electronic Cigarette | 2.56 | 1.93 |
| Unmanned Air Vehicle (UAV) | 2.67 | 1.81 |
| Nail Gun | 4.22 | 3.36 |
| Web Camera | 7.39 | 3.09 |
| Virtual Reality | 7.78 | 2.33 |
| Laptop Computer | 7.94 | 2.34 |
| Intelligent Personal Assistant (e.g., Alexa) | 8.00 | 3.29 |
| Cloud Storage | 8.06 | 3.42 |
| Smart Watch | 9.00 | 1.78 |
| Vacuum | 10.33 | 2.74 |
| Inhaler | 10.78 | 2.98 |
| Electric Toothbrush | 11.72 | 2.37 |
| Calculator | 13.17 | 2.06 |
| Safety Glasses | 14.00 | 1.26 |

# APPENDIX E. TASK AND SITUATION RANK ORDERING

## E.1 Participants Descriptors

Twenty-two participants participated. They were recruited through SONA at Georgia Institute of Technology and received 0.5 hours of credit for participation. They had a mean age of 19.63 (SD=1.53). The participants were evenly split between male and female (11 each).

## E.2 Ranking Data

1=Most Risky to 15=Least Risky

**Table 47. Task and Situation Ranking**

| Task/Situation | Mean | SD |
|---|---|---|
| Going to North Korea | 2.28 | 1.50 |
| Being operated on or undergoing surgery | 3.44 | 2.68 |
| Drinking until you are black-out drunk | 3.56 | 2.15 |
| Swimming with sharks | 4.50 | 3.09 |
| Shooting a gun | 4.61 | 2.57 |
| Crossing a street | 6.94 | 2.89 |
| Getting stopped by the police | 7.39 | 3.18 |
| Stealing Music | 8.28 | 1.57 |
| Changing a tire on a car | 8.83 | 2.60 |
| Ending a relationship (e.g., break up) | 8.83 | 2.58 |
| Checking your bank account | 10.89 | 2.38 |
| Turning on a light | 11.83 | 3.44 |
| Finding a restaurant to eat at | 12.39 | 2.38 |
| Listening to music | 13.06 | 1.48 |
| Brushing your teeth | 13.17 | 1.73 |

# APPENDIX F. GENERAL MEASURE OF PERCEIVED RISK

## F.1 Original Items

1. How concerned are you (if at all) about X?
2. When you think about X for a moment, to what extent do you feel fearful?
3. When you think about X for a moment, to what extent do you feel anxious?
4. When you think about X for a moment, to what extent do you feel worried?
5. Considering any potential effects that X might have on you personally, how concerned are you about X?
6. How likely is it that you will do X this year where you live?
7. I am confident that I will not do X this year where I live.
8. How often do you do X?
9. If I did experience X, it would have a severe effect on me personally.
10. How severe are the impacts of X to you?
11. I believe that the consequences of X would be devastating.
12. If I did experience X, it is likely that it would negatively impact me.
13. If I did X today, it is likely that I would experience some negative consequences.
14. I would be unprotected if I were to do X.
15. X would likely have negative impacts on me and my family.
16. There is little hope of me and my family/property remaining unharmed if I were to do X.

## F.2 Reworded Items

**Table 48. General Measure of Perceived Risk Reworded Items**

| ITEM | **Likert Response Values** | | | | |
|---|---|---|---|---|---|
| **1.** How concerned are you (if at all) about using X/doing X? | *Not at all concerned* | *Slightly concerned* | *Somewhat concerned* | *Moderately concerned* | *Extremely concerned* |
| **2.** When you think about using X/doing X for a moment, to what extent do you feel fearful? | *Not at all* | *Slightly* | *Somewhat* | *Moderately* | *Extremely* |
| **3.** When you think about using X/doing X for a moment, to what extent do you feel anxious? | *Not at all* | *Slightly* | *Somewhat* | *Moderately* | *Extremely* |
| **4.** When you think about using X/doing X for a moment, to what extent do you feel worried? | *Not at all* | *Slightly* | *Somewhat* | *Moderately* | *Extremely* |
| **5.** Considering any potential effects that using X/doing X might have on you personally, how concerned are you about using X/doing X? | *Not at all concerned* | *Slightly concerned* | *Somewhat concerned* | *Moderately concerned* | *Extremely concerned* |
| **6.** How likely is it that you will using X/doing X this year where you live? | *Extremely unlikely* | *Somewhat unlikely* | *Neither likely nor unlikely* | *Somewhat likely* | *Extremely likely* |
| **7.** I am confident that I will not use X/do X this year where I live. | *Strongly disagree* | *Somewhat disagree* | *Neither agree nor disagree* | *Somewhat agree* | *Strongly agree* |
| **8.** How often do you use X/do X? | *Almost never* | *Rarely* | *Sometimes* | *Often* | *Frequently* |
| **9.** If I did use X/do X, it would have a severe effect on me personally. | *Strongly disagree* | *Somewhat disagree* | *Neither agree nor disagree* | *Somewhat agree* | *Strongly agree* |
| **10.** How severe are the impacts of using X/doing X to you? | *Not at all severe* | *Slightly sever* | *Somewhat severe* | *Moderately severe* | *Extremely severe* |

| | | | | | |
|---|---|---|---|---|---|
| **11.** I believe that the consequences of using X/doing X would be devastating. | *Strongly disagree* | *Somewhat disagree* | *Neither agree nor disagree* | *Somewhat agree* | *Strongly agree* |
| **12.** If I did use X/do X, it is likely that it would negatively impact me. | *Strongly disagree* | *Somewhat disagree* | *Neither agree nor disagree* | *Somewhat agree* | *Strongly agree* |
| **13.** If I did use X/do today, it is likely that I would experience some negative consequences. | *Strongly disagree* | *Somewhat disagree* | *Neither agree nor disagree* | *Somewhat agree* | *Strongly agree* |
| **14.** I would be unprotected if I were to use X/do. | *Strongly disagree* | *Somewhat disagree* | *Neither agree nor disagree* | *Somewhat agree* | *Strongly agree* |
| **15.** Using X/Doing X would likely have negative impacts on me and my family. | *Strongly disagree* | *Somewhat disagree* | *Neither agree nor disagree* | *Somewhat agree* | *Strongly agree* |
| **16.** There is little hope of me and my family/property remaining unharmed if I were to use X/do X. | *Strongly disagree* | *Somewhat disagree* | *Neither agree nor disagree* | *Somewhat agree* | *Strongly agree* |

# APPENDIX G. POSITIVE AND NEGATIVE AFFECT SCHEDULE (PANAS)

This scale consists of a number of words that describe different feelings and emotions. Thinking about _______(using___/doing____) please explain your expected feelings and emotions.

Response options: 1-Very Slightly/Not at All, 2-A Little, 3-Moderately, 4-Quite a Bit, and 5-Extremely

1. Interested (curious or want to know more)
2. Distressed (anxious or upset)
3. Excited (eager or want to do more)
4. Upset (unhappy or worried)
5. Strong (powerful or can do things well)
6. Guilty (wrong or feel sorry)
7. Scared (afraid or nervous)
8. Hostile (unfriendly or mean)
9. Enthusiastic (feeling joyful or pleased)
10. Proud (pleased or happy with yourself)
11. Irritable (grumpy or upset)
12. Alert (awake or quick to understand
13. Ashamed (guilty or sorry)
14. Inspired (encouraged or motivated)

15. Nervous (jumpy or tense)

16. Determined (stubborn or have a strong desire)

17. Attentive (alert or thoughtful)

18. Jittery (nervous or jumpy)

19. Active (full of energy or lively)

20. Afraid (scared or terrified)

# APPENDIX H. EXPERIENCE AND BEHAVIORAL INTENTION TO USE

## H.1 Experience

Please indicate how often you have (used____/done___) in the last year:

1-Never

2-Less than once a month

3-Monthly

4-Weekly

5-Daily

## H.2 Behavioral Intention to Use/Do

Please indicate how often you plan to use_____/do_____ in the next 12 months.

1-Never

2-Less than once a month

3-Monthly

4-Weekly

5-Daily

# APPENDIX I. AUTOMATION TRUST SCALE

Below is a list of statements for evaluating trust between people and automation. There are several scales for you to rate intensity of your feeling of trust or your impression of the system while operating a machine. Please choose the option that best describes your feeling or your impression. (system replaced by calculator or electronic cigarette).

1- Not at all to 7-extremely

1. The system is deceptive.
2. The system behaves in an underhanded manner.
3. I am suspicious of the system's intent, action, or outputs.
4. I am wary of the system.
5. The system's actions will have a harmful or injurious outcome.
6. I am confident in the system.
7. The system provides security.
8. The system has integrity.
9. The system is dependable.
10. The system is reliable.
11. I can trust the system.
12. I am familiar with the system.

# APPENDIX J. DEMOGRAPHICS

1. What is your current age?_______________

2. What is your gender?

    a. Female
    b. Male
    c. Non-binary/third gender
    d. Do not wish to answer

3. What is your preferred language for communicating?

    a. English
    b. Spanish
    c. American Sign Language
    d. Other (please specify)________

4. How would you describe your primary racial group?

    a. American Indian/Alaska Native
    b. Asian
    c. Black or African American
    d. Native Hawaiian or Other Pacific Islander
    e. White or Caucasian
    f. More than one race
    g. Other (please specify)

h. Do not wish to answer

5. What is your highest level of education?

a. No formal education
b. Less than high school graduate
c. High school graduate/GED
d. Vocational training
e. Some or in-progress college/Associate's degree
f. Bachelor's degree (BA, BS)
g. Master's degree (or other post-graduate training)
h. Doctoral degree (PhD, MD, EdD, DDS, JD, etc)
i. Do not wish to answer

# APPENDIX K. OTHER SCALES

## K.1 Ten Item Personality Inventory

Here are a number of personality traits that may or may not apply to you. Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other.

| Disagree Strongly | Disagree Moderately | Disagree a little | Neither agree nor disagree | Agree a little | Agree Moderately | Agree Strongly |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

I see myself as:

1. _______ Extraverted, enthusiastic.
2. _______ Critical, quarrelsome.
3. _______ Dependable, self-disciplined.
4. _______ Anxious, easily upset.
5. _______ Open to new experiences, complex.
6. _______ Reserved, quiet.
7. _______ Sympathetic, warm.
8. _______ Disorganized, careless.
9. _______ Calm, emotionally stable.
10. _______ Conventional, uncreative.

## K.2 Propensity to Trust

How accurately does this item describe you?

Response options: Strongly Inaccurate (1) to Accurately (6)

1. Listen to my conscience
2. Anticipate the needs of others
3. Respect others
4. Can get along with people
5. Have always been completely fair to others
6. Stick to the rules
7. Believe that laws should be strictly enforced
8. Have a good word for everyone
9. Value cooperation over competition
10. Return extra change when a cashier makes a mistake
11. Would never cheat on my taxes
12. Follow through with my plans
13. Believe that people are basically moral
14. Finish what I start
15. Retreat from others
16. Am filled with doubts about things
17. Feel short-changed in life
18. Avoid contacts with others
19. Believe that most people would lie to get ahead

20. Find it hard to forgive others

21. Believe that people seldom tell you the whole story

## K.3 Domain specific risk-taking scale (DOSPERT)

### *K.3.1 Risk Taking*

For each of the following statements, please indicate the likelihood that you would engage in the described activity or behavior if you were to find yourself in that situation. Provide a rating from Extremely Unlikely to Extremely Likely, using the following scale:

Response options: 1-Extremely Unlikely, 2-Moderately Unlikely, 3-Somewhat Unlikely, 4-Not sure, 5-Somewhat Likely, 6-Moderately Likely, 7- Extremely Likely

1. Admitting that your tastes are different from those of a friend. (S)
2. Going camping in the wilderness. (R)
3. Betting a day’s income at the horse races. (F)
4. Investing 10% of your annual income in a moderate growth mutual fund. (F)
5. Drinking heavily at a social function. (H/S)
6. Taking some questionable deductions on your income tax return. (E)
7. Disagreeing with an authority figure on a major issue. (S)
8. Betting a day’s income at a high-stake poker game. (F)
9. Having an affair with a married man/woman. (E)
10. Passing off somebody else’s work as your own. (E)
11. Going down a ski run that is beyond your ability. (R)
12. Investing 5% of your annual income in a very speculative stock. (F)

13. Going whitewater rafting at high water in the spring. (R)
14. Betting a day's income on the outcome of a sporting event (F)
15. Engaging in unprotected sex. (H/S)
16. Revealing a friend's secret to someone else. (E)
17. Driving a car without wearing a seat belt. (H/S)
18. Investing 10% of your annual income in a new business venture. (F)
19. Taking a skydiving class. (R)
20. Riding a motorcycle without a helmet. (H/S)
21. Choosing a career that you truly enjoy over a more secure one. (S)

Domains: E = Ethical, F = Financial, H/S = Health/Safety, R = Recreational, and S = Social

*K.3.2 Risk Perception*

People often see some risk in situations that contain uncertainty about what the outcome or consequences will be and for which there is the possibility of negative consequences. However, riskiness is a very personal and intuitive notion, and we are interested in your gut level assessment of how risky each situation or behavior is. For each of the following statements, please indicate how risky you perceive each situation. Provide a rating from Not at all Risky to Extremely Risky, using the following scale:

Response options: 1-Not at all, 2-Slightly Risky, 3-Somewhat Risky, 4-Moderately Risky, 5-Risky, 6-Very Risky, 7-Extremely Risky

1. Admitting that your tastes are different from those of a friend. (S)
2. Going camping in the wilderness. (R)

3. Betting a day's income at the horse races. (F)
4. Investing 10% of your annual income in a moderate growth mutual fund. (F)
5. Drinking heavily at a social function. (H/S)
6. Taking some questionable deductions on your income tax return. (E)
7. Disagreeing with an authority figure on a major issue. (S)
8. Betting a day's income at a high-stake poker game. (F)
9. Having an affair with a married man/woman. (E)
10. Passing off somebody else's work as your own. (E)
11. Going down a ski run that is beyond your ability. (R)
12. Investing 5% of your annual income in a very speculative stock. (F)
13. Going whitewater rafting at high water in the spring. (R)
14. Betting a day's income on the outcome of a sporting event (F)
15. Engaging in unprotected sex. (H/S)
16. Revealing a friend's secret to someone else. (E)
17. Driving a car without wearing a seat belt. (H/S)
18. Investing 10% of your annual income in a new business venture. (F)
19. Taking a skydiving class. (R)
20. Riding a motorcycle without a helmet. (H/S)
21. Choosing a career that you truly enjoy over a more secure one. (S)

Domains: E = Ethical, F = Financial, H/S = Health/Safety, R = Recreational, and S = Social

# APPENDIX L. PILOT DATA AND POWER ANALYSIS

## L.L.1 Participant Descriptors

Forty-six participants participated. They were recruited through SONA at Georgia Institute of Technology and received 1.5 hours of credit for participation. They had a mean age of 19.54 (SD=1.56). There were 25 female and 21 male participants. English was the preferred language for communicating for 43 participants. Two participants preferred communicating in Chinese and one preferred Korean. The participants were primarily Asian (22) or White/Caucasian (18). One participant was African American, three were more than one race, and two preferred not to answer the question.

## L.2 Principal Components Analysis

### *L.2.1 Affect Items*

#### L.2.1.1 Calculator

**Table 49. Calculator Affect Items PCA: Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 10.172 | 50.859 | 50.859 | 10.172 | 50.859 | 50.859 |
| 2 | 2.294 | 11.471 | 62.33 | 2.294 | 11.471 | 62.33 |
| 3 | 1.48 | 7.399 | 69.729 | 1.48 | 7.399 | 69.729 |
| 4 | 1.21 | 6.052 | 75.781 | 1.21 | 6.052 | 75.781 |
| 5 | 0.969 | 4.846 | 80.627 | 0.969 | 4.846 | 80.627 |
| 6 | 0.763 | 3.813 | 84.44 | 0.763 | 3.813 | 84.44 |
| 7 | 0.629 | 3.143 | 87.583 | 0.629 | 3.143 | 87.583 |
| 8 | 0.514 | 2.569 | 90.152 | 0.514 | 2.569 | 90.152 |
| 9 | 0.424 | 2.119 | 92.271 | 0.424 | 2.119 | 92.271 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 10 | 0.399 | 1.997 | 94.268 | 0.399 | 1.997 | 94.268 |
| 11 | 0.351 | 1.757 | 96.025 | 0.351 | 1.757 | 96.025 |
| 12 | 0.194 | 0.97 | 96.995 | 0.194 | 0.97 | 96.995 |
| 13 | 0.182 | 0.908 | 97.903 | 0.182 | 0.908 | 97.903 |
| 14 | 0.113 | 0.567 | 98.471 | 0.113 | 0.567 | 98.471 |
| 15 | 0.096 | 0.48 | 98.95 | 0.096 | 0.48 | 98.95 |
| 16 | 0.069 | 0.345 | 99.296 | 0.069 | 0.345 | 99.296 |
| 17 | 0.056 | 0.278 | 99.573 | 0.056 | 0.278 | 99.573 |
| 18 | 0.042 | 0.208 | 99.782 | 0.042 | 0.208 | 99.782 |
| 19 | 0.029 | 0.143 | 99.925 | 0.029 | 0.143 | 99.925 |
| 20 | 0.015 | 0.075 | 100 | 0.015 | 0.075 | 100 |

Extraction Method: Principal Component Analysis.

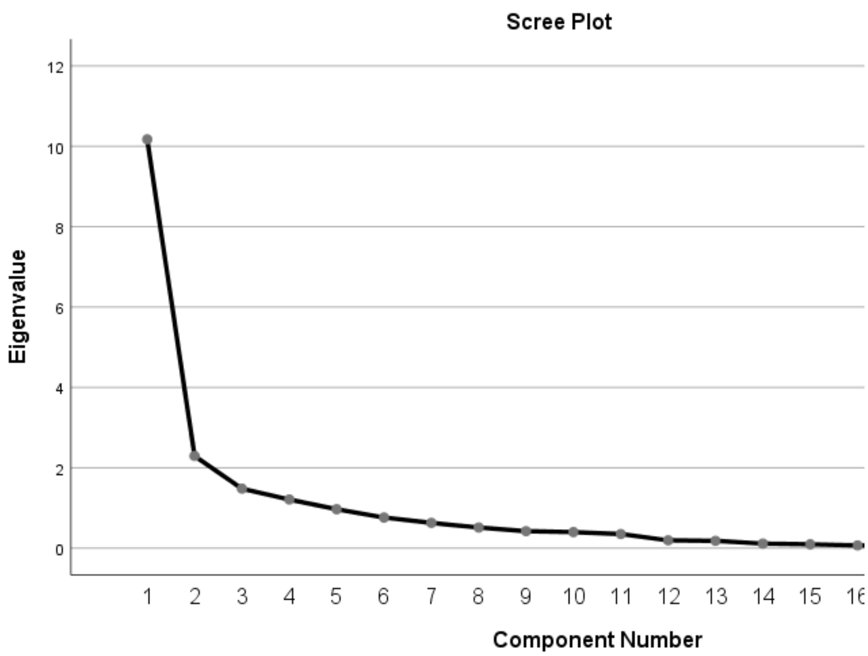



**Figure 2. Calculator Affect Items PCA: Scree Plot**

## L.2.1.2 Electronic cigarette

**Table 50. Electronic Cigarette PCA: Total Variance Explained**

Total Variance Explained

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 11.364 | 56.822 | 56.822 | 11.364 | 56.822 | 56.822 |
| 2 | 2.247 | 11.233 | 68.055 | 2.247 | 11.233 | 68.055 |
| 3 | 1.47 | 7.35 | 75.405 | 1.47 | 7.35 | 75.405 |
| 4 | 0.967 | 4.835 | 80.239 | 0.967 | 4.835 | 80.239 |
| 5 | 0.634 | 3.168 | 83.407 | 0.634 | 3.168 | 83.407 |
| 6 | 0.539 | 2.693 | 86.1 | 0.539 | 2.693 | 86.1 |
| 7 | 0.432 | 2.162 | 88.262 | 0.432 | 2.162 | 88.262 |
| 8 | 0.392 | 1.961 | 90.223 | 0.392 | 1.961 | 90.223 |
| 9 | 0.36 | 1.801 | 92.024 | 0.36 | 1.801 | 92.024 |
| 10 | 0.305 | 1.525 | 93.549 | 0.305 | 1.525 | 93.549 |
| 11 | 0.256 | 1.282 | 94.831 | 0.256 | 1.282 | 94.831 |
| 12 | 0.246 | 1.23 | 96.062 | 0.246 | 1.23 | 96.062 |
| 13 | 0.176 | 0.882 | 96.944 | 0.176 | 0.882 | 96.944 |
| 14 | 0.159 | 0.795 | 97.739 | 0.159 | 0.795 | 97.739 |
| 15 | 0.12 | 0.598 | 98.337 | 0.12 | 0.598 | 98.337 |
| 16 | 0.104 | 0.518 | 98.855 | 0.104 | 0.518 | 98.855 |
| 17 | 0.081 | 0.407 | 99.262 | 0.081 | 0.407 | 99.262 |
| 18 | 0.073 | 0.365 | 99.628 | 0.073 | 0.365 | 99.628 |
| 19 | 0.039 | 0.196 | 99.823 | 0.039 | 0.196 | 99.823 |
| 20 | 0.035 | 0.177 | 100 | 0.035 | 0.177 | 100 |

Extraction Method: Principal Component Analysis.

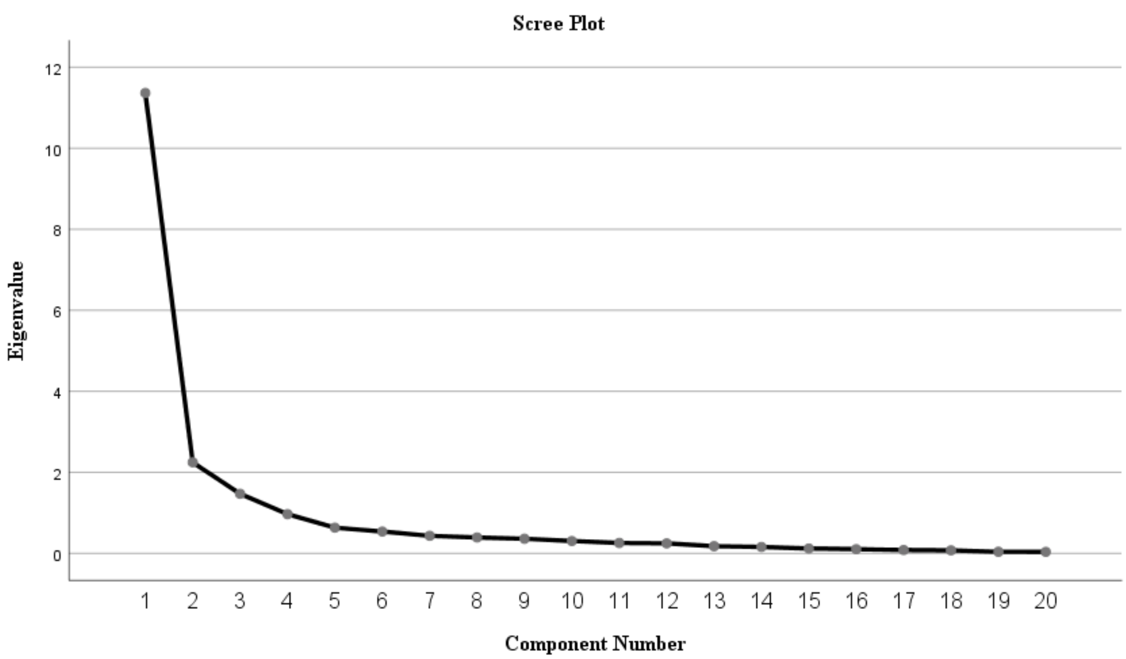



**Figure 3. Electronic Cigarette Affect Items PCA: Scree Plot**

L.2.1.3 Brushing your teeth

**Table 51. Brushing Your Teeth Affect Items PCA: Total Variance Explained**

| Total Variance Explained Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 11.041 | 55.204 | 55.204 | 11.041 | 55.204 | 55.204 |
| 2 | 2.688 | 13.438 | 68.642 | 2.688 | 13.438 | 68.642 |
| 3 | 1.817 | 9.085 | 77.727 | 1.817 | 9.085 | 77.727 |
| 4 | 1.069 | 5.346 | 83.073 | 1.069 | 5.346 | 83.073 |
| 5 | 0.963 | 4.817 | 87.89 | 0.963 | 4.817 | 87.89 |
| 6 | 0.572 | 2.862 | 90.752 | 0.572 | 2.862 | 90.752 |
| 7 | 0.421 | 2.103 | 92.855 | 0.421 | 2.103 | 92.855 |
| 8 | 0.362 | 1.811 | 94.665 | 0.362 | 1.811 | 94.665 |
| 9 | 0.296 | 1.481 | 96.146 | 0.296 | 1.481 | 96.146 |
| 10 | 0.268 | 1.342 | 97.488 | 0.268 | 1.342 | 97.488 |
| 11 | 0.181 | 0.904 | 98.392 | 0.181 | 0.904 | 98.392 |
| 12 | 0.121 | 0.607 | 98.999 | 0.121 | 0.607 | 98.999 |
| 13 | 0.064 | 0.321 | 99.32 | 0.064 | 0.321 | 99.32 |
| 14 | 0.05 | 0.252 | 99.571 | 0.05 | 0.252 | 99.571 |
| 15 | 0.038 | 0.192 | 99.763 | 0.038 | 0.192 | 99.763 |
| 16 | 0.024 | 0.119 | 99.882 | 0.024 | 0.119 | 99.882 |
| 17 | 0.012 | 0.061 | 99.943 | 0.012 | 0.061 | 99.943 |
| 18 | 0.006 | 0.029 | 99.971 | 0.006 | 0.029 | 99.971 |
| 19 | 0.004 | 0.019 | 99.99 | 0.004 | 0.019 | 99.99 |
| 20 | 0.002 | 0.01 | 100 | 0.002 | 0.01 | 100 |

Extraction Method: Principal Component Analysis.

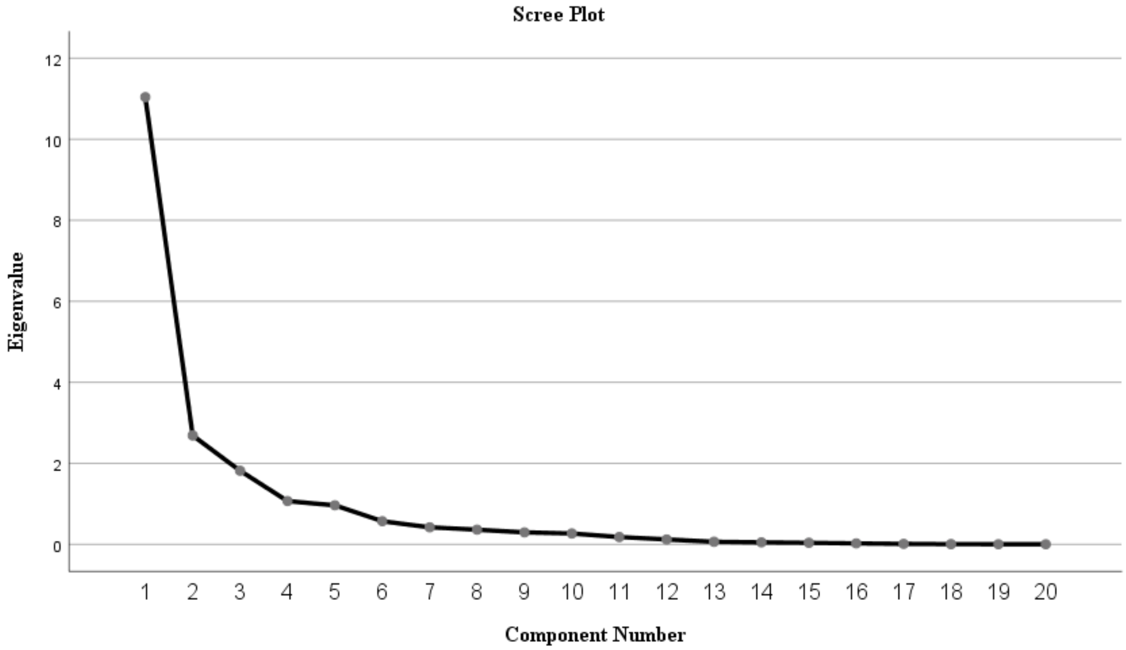



**Figure 4. Brushing Your Teeth Affect Items PCA: Scree Plot**

L.2.1.4 Drinking until you are blackout drunk

**Table 52. Drinking Until Blackout Drunk Affect Items PCA: Total Variance Explained**

Total Variance Explained

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 9.991 | 49.956 | 49.956 | 9.991 | 49.956 | 49.956 |
| 2 | 1.931 | 9.654 | 59.611 | 1.931 | 9.654 | 59.611 |
| 3 | 1.534 | 7.67 | 67.28 | 1.534 | 7.67 | 67.28 |
| 4 | 1.329 | 6.647 | 73.928 | 1.329 | 6.647 | 73.928 |
| 5 | 0.919 | 4.597 | 78.525 | 0.919 | 4.597 | 78.525 |
| 6 | 0.847 | 4.233 | 82.758 | 0.847 | 4.233 | 82.758 |
| 7 | 0.541 | 2.704 | 85.462 | 0.541 | 2.704 | 85.462 |
| 8 | 0.505 | 2.527 | 87.989 | 0.505 | 2.527 | 87.989 |
| 9 | 0.463 | 2.315 | 90.303 | 0.463 | 2.315 | 90.303 |
| 10 | 0.433 | 2.165 | 92.468 | 0.433 | 2.165 | 92.468 |
| 11 | 0.335 | 1.675 | 94.143 | 0.335 | 1.675 | 94.143 |
| 12 | 0.291 | 1.455 | 95.598 | 0.291 | 1.455 | 95.598 |
| 13 | 0.242 | 1.208 | 96.806 | 0.242 | 1.208 | 96.806 |
| 14 | 0.158 | 0.788 | 97.594 | 0.158 | 0.788 | 97.594 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 15 | 0.118 | 0.59 | 98.184 | 0.118 | 0.59 | 98.184 |
| 16 | 0.111 | 0.553 | 98.737 | 0.111 | 0.553 | 98.737 |
| 17 | 0.095 | 0.476 | 99.213 | 0.095 | 0.476 | 99.213 |
| 18 | 0.085 | 0.426 | 99.639 | 0.085 | 0.426 | 99.639 |
| 19 | 0.049 | 0.247 | 99.885 | 0.049 | 0.247 | 99.885 |
| 20 | 0.023 | 0.115 | 100 | 0.023 | 0.115 | 100 |

Extraction Method: Principal Component Analysis.

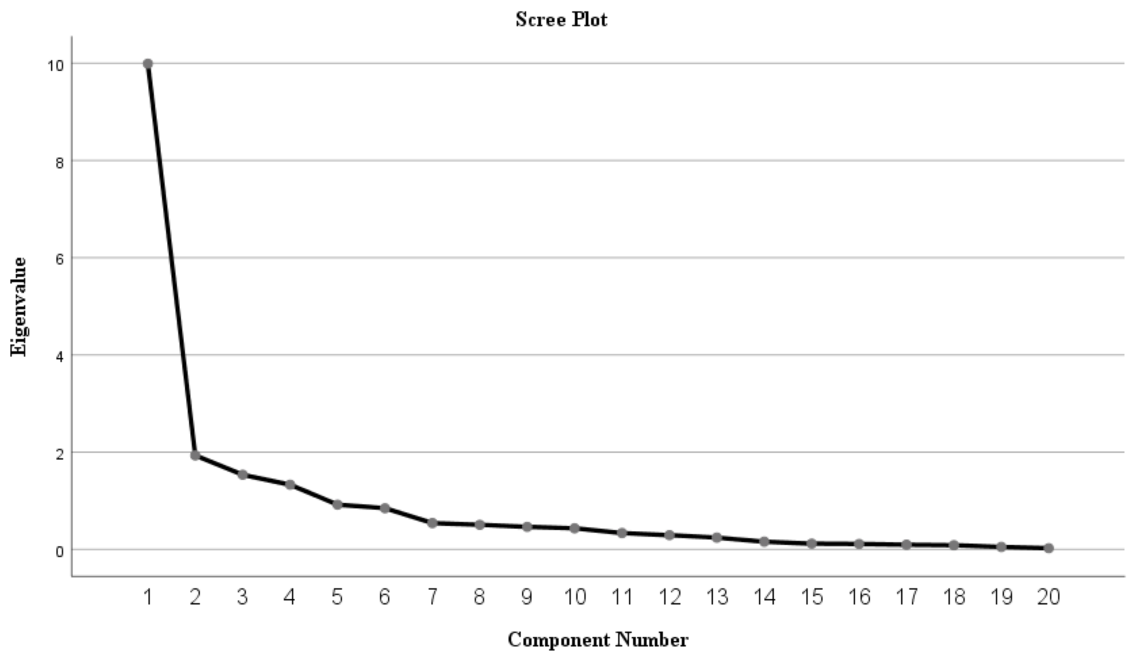



**Figure 5. Drinking Until Blackout Drunk Affect Items PCA: Scree Plot**

### *L.2.2 Probability x Severity Items*

#### L.2.2.1 Calculator

**Table 53. Calculator Probability x Severity Items PCA: Total Variance Explained**

Total Variance Explained

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 8.221 | 74.74 | 74.74 | 8.221 | 74.74 | 74.74 |
| 2 | 1.443 | 13.119 | 87.858 | 1.443 | 13.119 | 87.858 |
| 3 | 0.572 | 5.198 | 93.056 | | | |
| 4 | 0.281 | 2.554 | 95.61 | | | |
| 5 | 0.237 | 2.151 | 97.761 | | | |

| | | | |
|---|---|---|---|
| 6 | 0.107 | 0.974 | 98.735 |
| 7 | 0.066 | 0.602 | 99.337 |
| 8 | 0.033 | 0.302 | 99.64 |
| 9 | 0.02 | 0.184 | 99.824 |
| 10 | 0.013 | 0.114 | 99.938 |
| 11 | 0.007 | 0.062 | 100 |

Extraction Method: Principal Component Analysis.

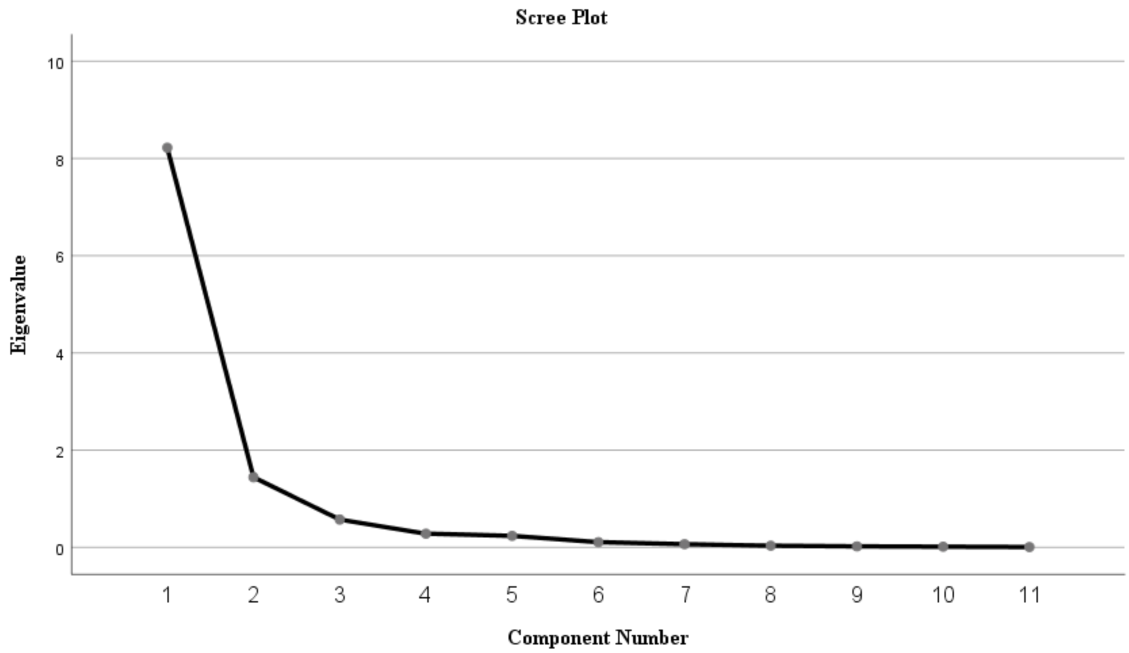



**Figure 6. Calculator Probability x Severity Items PCA: Scree Plot**

L.2.2.2 Electronic cigarette

**Table 54. Electronic Cigarette Probability x Severity Items PCA: Total Variance Explained**

Total Variance Explained

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 9.307 | 84.61 | 84.61 | 9.307 | 84.61 | 84.61 |
| 2 | 0.402 | 3.655 | 88.265 | | | |
| 3 | 0.332 | 3.022 | 91.288 | | | |
| 4 | 0.281 | 2.556 | 93.844 | | | |
| 5 | 0.228 | 2.07 | 95.914 | | | |
| 6 | 0.177 | 1.61 | 97.524 | | | |
| 7 | 0.087 | 0.787 | 98.31 | | | |

| | | | |
|---|---|---|---|
| 8 | 0.07 | 0.634 | 98.944 |
| 9 | 0.056 | 0.51 | 99.454 |
| 10 | 0.038 | 0.342 | 99.796 |
| 11 | 0.022 | 0.204 | 100 |

Extraction Method: Principal Component Analysis.

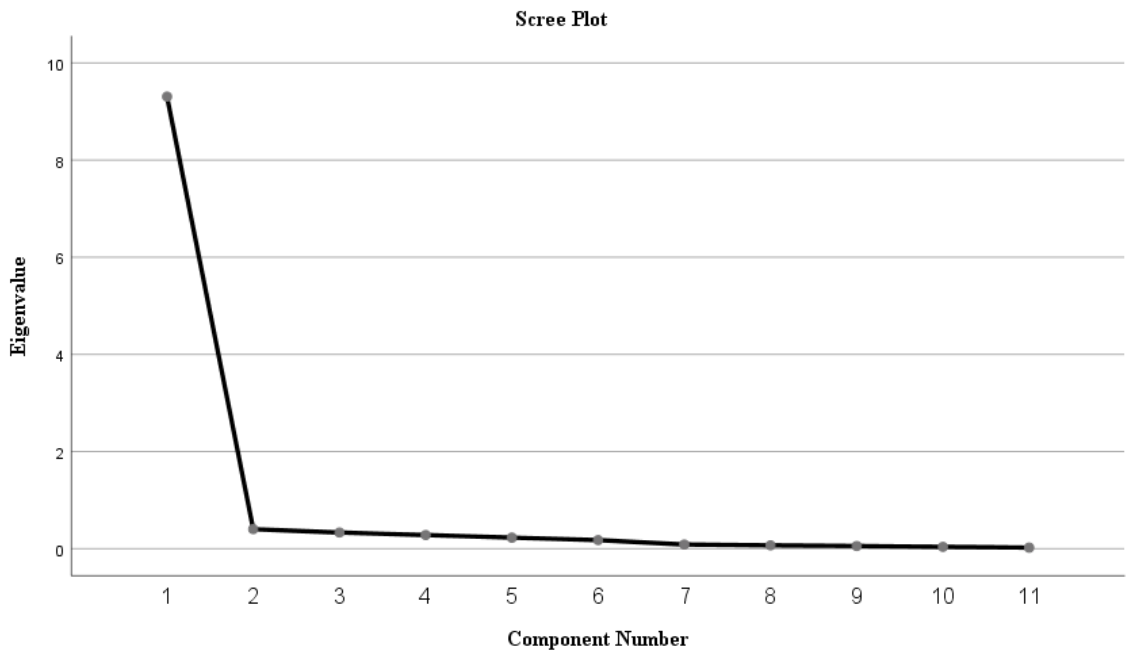



**Figure 7. Electronic Cigarette Probability x Severity Items PCA: Scree Plot**

L.2.2.3 Brushing your teeth

**Table 55. Brushing Your Teeth Probability x Severity Items PCA: Total Variance Explained**

Total Variance Explained

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 10.474 | 95.221 | 95.221 | 10.474 | 95.221 | 95.221 |
| 2 | 0.385 | 3.504 | 98.725 | | | |
| 3 | 0.052 | 0.469 | 99.194 | | | |
| 4 | 0.035 | 0.318 | 99.512 | | | |
| 5 | 0.02 | 0.183 | 99.694 | | | |
| 6 | 0.015 | 0.136 | 99.83 | | | |
| 7 | 0.01 | 0.092 | 99.923 | | | |
| 8 | 0.005 | 0.042 | 99.965 | | | |
| 9 | 0.002 | 0.021 | 99.986 | | | |

| | | | |
|---|---|---|---|
| 10 | 0.001 | 0.007 | 99.994 |
| 11 | 0.001 | 0.006 | 100 |

Extraction Method: Principal Component Analysis.

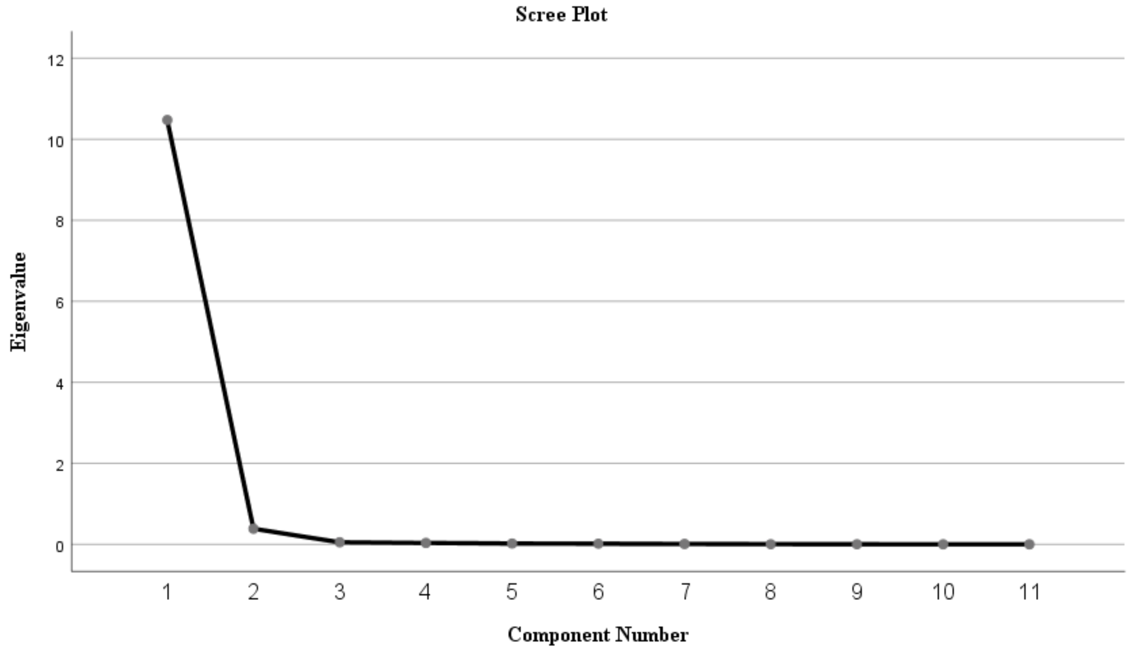



**Figure 8. Brushing Your Teeth Probability x Severity Items PCA: Scree Plot**

L.2.2.4 Drinking until you are blackout drunk

**Table 56. Drinking Until Blackout Drunk Probability x Severity Items PCA: Total Variance Explained**

Total Variance Explained

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 8.987 | 81.704 | 81.704 | 8.987 | 81.704 | 81.704 |
| 2 | 0.567 | 5.152 | 86.856 | | | |
| 3 | 0.512 | 4.653 | 91.509 | | | |
| 4 | 0.26 | 2.367 | 93.875 | | | |
| 5 | 0.174 | 1.585 | 95.461 | | | |
| 6 | 0.136 | 1.235 | 96.696 | | | |
| 7 | 0.119 | 1.082 | 97.778 | | | |
| 8 | 0.103 | 0.938 | 98.716 | | | |
| 9 | 0.06 | 0.544 | 99.26 | | | |
| 10 | 0.045 | 0.409 | 99.669 | | | |
| 11 | 0.036 | 0.331 | 100 | | | |

Extraction Method: Principal Component Analysis.

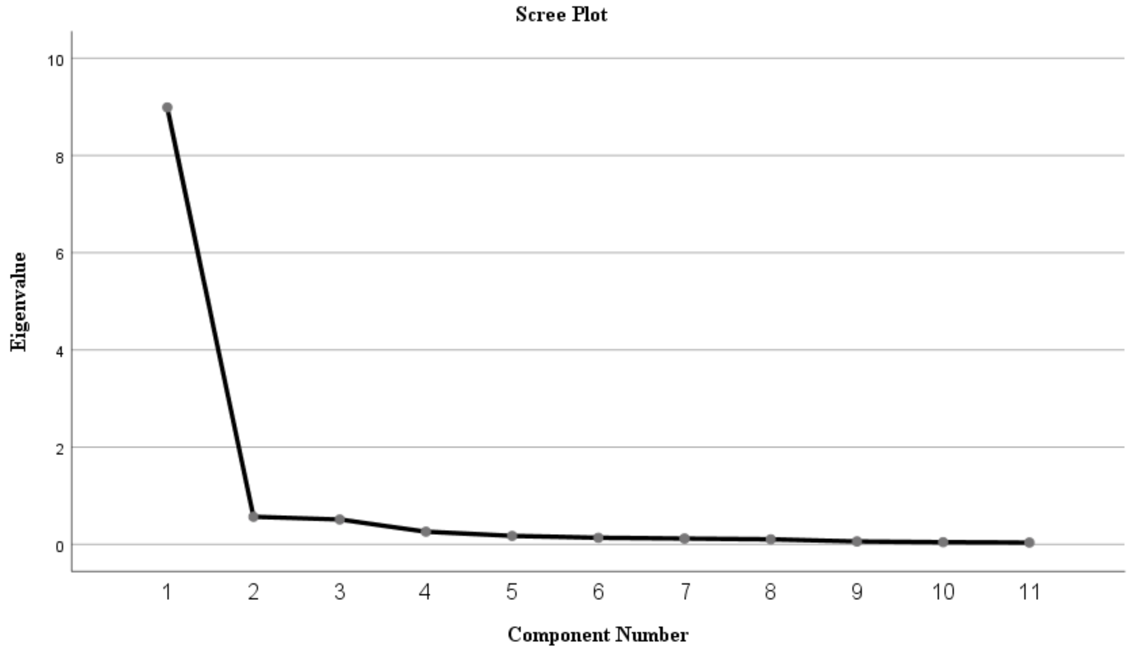



**Figure 9. Drinking Until Blackout Drunk Probability x Severity Items PCA: Scree Plot**

## L.3 Parallel Analysis

Because the results from the principal components did not give a clear indication of an appropriate number of factors. A parallel analysis was conducted to determine the number of factors that should be retained using the seventy-fifth percentile eigen value produced from the random data.

### *L.3.1 Affect Items*

For the affective items, a bootstrap parallel analysis using polychoric correlations was used as the data was primarily binomial in responses. For each run there were 30 random data sets created and the 75 percentile of the eigen values were obtained to be utilized as a cut off.

L.3.1.1 Calculator

**Table 57. Calculator Parallel Analysis: Affect Items**

| | Eigenvalue for Real Data | 75 % Quantile |
|---|---|---|
| 1 | 13.6553 | 3.37242 |
| 2 | 1.82004 | 2.92138 |
| 3 | 1.52384 | 2.56417 |
| 4 | 0.69831 | 2.18111 |
| 5 | 0.58074 | 1.8655 |
| 6 | 0.51465 | 1.64777 |
| 7 | 0.43133 | 1.46541 |
| 8 | 0.35957 | 1.25008 |
| 9 | 0.30037 | 1.08074 |
| 10 | 0.24359 | 0.94332 |
| 11 | 0.16375 | 0.74841 |
| 12 | 0.14738 | 0.65133 |
| 13 | 0.0346 | 0.52362 |
| 14 | 0.023 | 0.39019 |
| 15 | -0.0123 | 0.289 |
| 16 | -0.0379 | 0.1687 |
| 17 | -0.0655 | 0.09576 |
| 18 | -0.0828 | -0.0295 |
| 19 | -0.1026 | -0.1504 |
| 20 | -0.1953 | -0.3201 |

L.3.1.2 Electronic cigarette

**Table 58. Electronic Cigarette Parallel Analysis: Affect Items**

| | Eigenvalue for Real Data | 75 % Quantile |
|---|---|---|
| 1 | 13.6553 | 3.37242 |
| 2 | 1.82004 | 2.92138 |
| 3 | 1.52384 | 2.56417 |

| | | |
|---|---|---|
| 4 | 0.69831 | 2.18111 |
| 5 | 0.58074 | 1.8655 |
| 6 | 0.51465 | 1.64777 |
| 7 | 0.43133 | 1.46541 |
| 8 | 0.35957 | 1.25008 |
| 9 | 0.30037 | 1.08074 |
| 10 | 0.24359 | 0.94332 |
| 11 | 0.16375 | 0.74841 |
| 12 | 0.14738 | 0.65133 |
| 13 | 0.0346 | 0.52362 |
| 14 | 0.023 | 0.39019 |
| 15 | -0.0123 | 0.289 |
| 16 | -0.0379 | 0.1687 |
| 17 | -0.0655 | 0.09576 |
| 18 | -0.0828 | -0.0295 |
| 19 | -0.1026 | -0.1504 |
| 20 | -0.1953 | -0.3201 |

L.3.1.3 Brushing your teeth

**Table 59. Brushing Your Teeth Parallel Analysis: Affect Items**

| | Eigenvalue for Real Data | 75 % Quantile |
|---|---|---|
| 1 | 16.029 | 4.69121 |
| 2 | 1.53509 | 3.45661 |
| 3 | 0.81059 | 2.89701 |
| 4 | 0.70388 | 2.58032 |
| 5 | 0.40938 | 2.13304 |
| 6 | 0.29858 | 1.7779 |
| 7 | 0.22522 | 1.56859 |
| 8 | 0.13358 | 1.3076 |
| 9 | 0.12337 | 1.19776 |
| 10 | 0.09066 | 0.96483 |
| 11 | 0.06491 | 0.79274 |
| 12 | 0.02036 | 0.61593 |
| 13 | 0.00599 | 0.45747 |
| 14 | -0.019 | 0.28251 |

| | | |
|---|---|---|
| 15 | -0.0358 | 0.16197 |
| 16 | -0.0453 | -0.0292 |
| 17 | -0.0528 | -0.183 |
| 18 | -0.0731 | -0.3402 |
| 19 | -0.0908 | -0.5197 |
| 20 | -0.1338 | -0.8326 |

L.3.1.4 Drinking until you are blackout drunk

**Table 60. Drinking Until Blackout Drunk Parallel Analysis: Affect Items**

| | Eigenvalue for Real Data | 75 % Quantile |
|---|---|---|
| 1 | 14.6221 | 3.25368 |
| 2 | 1.29708 | 2.7356 |
| 3 | 0.90012 | 2.30778 |
| 4 | 0.76005 | 2.03794 |
| 5 | 0.5549 | 1.76703 |
| 6 | 0.48186 | 1.59135 |
| 7 | 0.41343 | 1.42252 |
| 8 | 0.28691 | 1.28692 |
| 9 | 0.28037 | 1.08312 |
| 10 | 0.20645 | 0.94395 |
| 11 | 0.1134 | 0.79833 |
| 12 | 0.08597 | 0.65642 |
| 13 | 0.07005 | 0.5604 |
| 14 | 0.0372 | 0.43992 |
| 15 | 0.02768 | 0.34008 |
| 16 | 0.01061 | 0.2223 |
| 17 | -0.0028 | 0.12359 |
| 18 | -0.0308 | 0.03714 |
| 19 | -0.0431 | -0.0577 |
| 20 | -0.0714 | -0.1709 |

Based on these results only one factor was retained for all technologies and tasks for the affective items. This is because only the first factor of the raw data was greater than the seventy-fifth percentile eigenvalue for the randomly generated data.

*L.3.2 Probability x Severity Items*

For each set of the probability and severity items, a parallel analysis of principal components was conducted using a Pearson correlation with SPSS. For each run there were 100 random data sets created and the 75 percentile of the eigen values were obtained to be utilized as a cut off.

L.3.1.1 Calculator

**Table 61. Calculator Parallel Analysis: Probability x Severity Items**

| Root | Raw Data | Means | Prcntyle |
|---|---|---|---|
| 1.000000 | 8.221350 | 1.891233 | 1.971462 |
| 2.000000 | 1.443077 | 1.608254 | 1.659399 |
| 3.000000 | .571784 | 1.402432 | 1.450698 |
| 4.000000 | .280890 | 1.217277 | 1.273632 |
| 5.000000 | .236649 | 1.062926 | 1.101320 |
| 6.000000 | .107100 | .937530 | .977181 |
| 7.000000 | .066261 | .814613 | .852986 |
| 8.000000 | .033238 | .686254 | .727406 |
| 9.000000 | .020293 | .572094 | .606269 |
| 10.000000 | .012532 | .460109 | .497320 |
| 11.000000 | .006826 | .347278 | .378551 |

L.3.1.2 Electronic cigarette

**Table 62. Electronic Cigarette Parallel Analysis: Probability x Severity Items**

| Root | Raw Data | Means | Prcntyle |
|---|---|---|---|
| 1.000000 | 9.307070 | 1.891233 | 1.971462 |
| 2.000000 | .402091 | 1.608254 | 1.659399 |
| 3.000000 | .332474 | 1.402432 | 1.450698 |
| 4.000000 | .281196 | 1.217277 | 1.273632 |
| 5.000000 | .227737 | 1.062926 | 1.101320 |
| 6.000000 | .177050 | .937530 | .977181 |
| 7.000000 | .086519 | .814613 | .852986 |
| 8.000000 | .069708 | .686254 | .727406 |
| 9.000000 | .056100 | .572094 | .606269 |
| 10.000000 | .037649 | .460109 | .497320 |
| 11.000000 | .022406 | .347278 | .378551 |

L.3.1.3 Brushing your teeth

**Table 63. Brushing Your Teeth Parallel Analysis: Probability x Severity Items**

| Root | Raw Data | Means | Prcntyle |
|---|---|---|---|
| 1.000000 | 10.474291 | 1.891233 | 1.971462 |
| 2.000000 | .385439 | 1.608254 | 1.659399 |
| 3.000000 | .051556 | 1.402432 | 1.450698 |
| 4.000000 | .034993 | 1.217277 | 1.273632 |
| 5.000000 | .020081 | 1.062926 | 1.101320 |
| 6.000000 | .014979 | .937530 | .977181 |
| 7.000000 | .010160 | .814613 | .852986 |

| | | | |
|---|---|---|---|
| 8.000000 | .004651 | .686254 | .727406 |
| 9.000000 | .002357 | .572094 | .606269 |
| 10.000000 | .000821 | .460109 | .497320 |
| 11.000000 | .000671 | .347278 | .378551 |

L.3.1.4 Drinking until you are blackout drunk

**Table 64. Drinking Until Blackout Drunk Parallel Analysis: Probability x Severity Items**

| Root | Raw Data | Means | Prcntyle |
|---|---|---|---|
| 1.000000 | 8.987388 | 1.891233 | 1.971462 |
| 2.000000 | .566735 | 1.608254 | 1.659399 |
| 3.000000 | .511839 | 1.402432 | 1.450698 |
| 4.000000 | .260332 | 1.217277 | 1.273632 |
| 5.000000 | .174367 | 1.062926 | 1.101320 |
| 6.000000 | .135864 | .937530 | .977181 |
| 7.000000 | .119058 | .814613 | .852986 |
| 8.000000 | .103230 | .686254 | .727406 |
| 9.000000 | .059825 | .572094 | .606269 |
| 10.000000 | .044954 | .460109 | .497320 |
| 11.000000 | .036409 | .347278 | .378551 |

Based on these results only one factor was retained for all technologies and tasks. This is because only the first factor of the raw data was greater than the seventy-fifth percentile eigenvalue for the randomly generated data.

## L.4 Factor Analysis

*L.4.1 Affect Items*

As only one factor was retained for all items, all items were analysed using an unrotated factor analysis.

L.4.1.1 Calculator

**Table 65. Calculator Affect Items Factor Analysis**

**Factor Matrix[a]**

| | Factor |
|---|---|
| | 1 |
| NA1_Calc | .824 |
| NA2_Calc | .707 |
| NA3_Calc | .683 |
| NA4_Calc | .456 |
| NA5_Calc | .776 |
| NA6_Calc | .784 |
| NA7_Calc | .812 |
| NA8_Calc | .560 |
| NA9_Calc | .748 |
| NA10_Calc | .785 |
| PA1_Calc | -.636 |
| PA2_Calc | -.799 |
| PA3_Calc | -.663 |
| PA4_Calc | -.724 |
| PA5_Calc | -.525 |
| PA6_Calc | -.623 |
| PA7_Calc | -.616 |
| PA8_Calc | -.737 |
| PA9_Calc | -.484 |
| PA10_Calc | -.809 |

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 4 iterations required.

Based on the factor analysis, all items were retained as all loadings were above 0.4 for all factors.

L.4.1.2 Electronic cigarette

**Table 66. Electronic Cigarette Affect Items Factor Analysis**

**Factor Matrix[a]**

| | Factor 1 |
|---|---|
| NA1_Ecig | .904 |
| NA2_Ecig | .765 |
| NA3_Ecig | .739 |
| NA4_Ecig | .622 |
| NA5_Ecig | .615 |
| NA6_Ecig | .863 |
| NA7_Ecig | .832 |
| NA8_Ecig | .747 |
| NA9_Ecig | .877 |
| NA10_Ecig | .742 |
| PA1_Ecig | -.816 |
| PA2_Ecig | -.775 |
| PA3_Ecig | -.602 |
| PA4_Ecig | -.700 |
| PA5_Ecig | -.825 |
| PA6_Ecig | -.472 |
| PA7_Ecig | -.716 |
| PA8_Ecig | -.738 |
| PA9_Ecig | -.656 |
| PA10_Ecig | -.638 |

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 4 iterations required.

Based on the factor analysis, all items were retained as all loadings were above 0.4 for all factors.

### L.4.1.3 Brushing your teeth

**Table 67. Brushing Your Teeth Affect Items Factor Analysis**

**Factor Matrix[a]**

| | Factor |
|---|---|
| | 1 |
| NA1_BrTeeth | -.748 |
| NA2_BrTeeth | -.767 |
| NA3_BrTeeth | -.872 |
| NA4_BrTeeth | -.735 |
| NA5_BrTeeth | -.576 |
| NA6_BrTeeth | -.464 |
| NA7_BrTeeth | -.467 |
| NA8_BrTeeth | -.534 |
| NA9_BrTeeth | -.672 |
| NA10_BrTeeth | -.765 |
| PA1_BrTeeth | .929 |
| PA2_BrTeeth | .528 |
| PA3_BrTeeth | .864 |
| PA4_BrTeeth | .813 |
| PA5_BrTeeth | .924 |
| PA6_BrTeeth | .428 |
| PA7_BrTeeth | .795 |
| PA8_BrTeeth | .808 |
| PA9_BrTeeth | .699 |
| PA10_BrTeeth | .872 |

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 4 iterations required.

Based on the factor analysis, all items were retained as all loadings were above 0.4 for all factors.

L.4.1.4 Drinking until you are blackout drunk

**Table 68. Drinking Until Blackout Drunk Affect Items Factor Analysis**

**Factor Matrix[a]**

| | Factor |
|---|---|
| | 1 |
| NA1_Drunk | .699 |
| NA2_Drunk | .663 |
| NA3_Drunk | .719 |
| NA4_Drunk | .648 |
| NA5_Drunk | .831 |
| NA6_Drunk | .440 |
| NA7_Drunk | .548 |
| NA8_Drunk | .548 |
| NA9_Drunk | .754 |
| NA10_Drunk | .923 |
| PA1_Drunk | -.659 |
| PA2_Drunk | -.343 |
| PA3_Drunk | -.839 |
| PA4_Drunk | -.883 |
| PA5_Drunk | -.697 |
| PA6_Drunk | -.558 |
| PA7_Drunk | -.620 |
| PA8_Drunk | -.692 |
| PA9_Drunk | -.764 |
| PA10_Drunk | -.694 |

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 4 iterations required.

Based on the factor analysis, all items, except PA2_Drunk, were retained as all loadings were above 0.4 for all factors.

### *L.4.2 Probability x Severity Items*

As only one factor was retained for all items, all items were analysed using an unrotated factor analysis.

#### L.4.2.1 Calculator

**Table 69. Calculator Probability x Severity Items Factor Analysis**

**Factor Matrix[a]**

| | Factor 1 |
|---|---|
| PxSRisky_Calc_Total | .729 |
| PXSCatCalc_Total | .841 |
| PXSDisCalc_Total | .827 |
| PXSDesCalc_Total | .827 |
| PXSTragicCalc_Total | .971 |
| PXSSeveCalc_Total | .893 |
| PXSDreadCalc_Total | .776 |
| PXSAwfCalc_Total | .809 |
| PXSBadCalc_Total | .959 |
| PXSUnpleasCalc_Total | .927 |
| PXSDissapCalc_Total | .763 |

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 5 iterations required.

#### L.4.2.2 Electronic cigarette

**Table 70. Electronic Cigarette Probability x Severity Items Factor Analysis**

**Factor Matrix[a]**

| | Factor |
|---|---|
| | 1 |
| PXSRiskyEcig_Total | .848 |
| PXSCatEcig_Total | .893 |
| PXSDisEcig_Total | .916 |
| PXSDesEcig_Total | .866 |
| PXSTragicEcig_Total | .941 |
| PXSSeveEcig_Total | .934 |
| PXSDreadEcig_Total | .868 |
| PXSAwfEcig_Total | .947 |
| PXSBadEcig_Total | .966 |
| PXSUnpleasEcig_Total | .934 |
| PXSDissapEcig_Total | .907 |

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 4 iterations required.

### L.4.2.3 Brushing your teeth

**Table 71. Brushing Your Teeth Probability x Severity Items Factor Analysis**

**Factor Matrix[a]**

| | Factor |
|---|---|
| | 1 |
| PXSRiskyBrTeeth_Total | .930 |
| PXSCatBrTeeth_Total | .923 |
| PXSDisBrTeeth_Total | .981 |
| PXSDesBrTeeth_Total | .989 |
| PXSTragicBrTeeth_Total | .964 |
| PXSSeveBrTeeth_Total | .990 |
| PXSDreadBrTeeth_Total | .980 |
| PXSAwfBrTeeth_Total | .998 |
| PXSBadBrTeeth_Total | .990 |

| | |
|---|---|
| PXSUnpleasBrTeeth_Total | .978 |
| PXSDissapBrTeeth_Total | .981 |

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 4 iterations required.

#### L.4.2.4 Drinking until you are blackout drunk

**Table 72. Drinking Until Blackout Drunk Probability x Severity Items Factor Analysis**

**Factor Matrix[a]**

| | Factor |
|---|---|
| | 1 |
| PXSRiskyDrunk_Total | .738 |
| PXSCatDrunk_Total | .895 |
| PXSDisDrunk_Total | .945 |
| PXSDesDrunk_Total | .929 |
| PXSTragicDrunk_Total | .894 |
| PXSSeveDrunk_Total | .900 |
| PXSDreadDrunk_Total | .868 |
| PXSAwfDrunk_Total | .962 |
| PXSBadDrunk_Total | .954 |
| PXSUnpleasDrunk_Total | .866 |
| PXSDissapDrunk_Total | .864 |

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 4 iterations required.

Based on the factor analysis, all items were retained as all loadings were high (above 0.7) for all factors.

## L.5 Reliability Analysis

### *L.5.1 Affect Items*

L.5.1.1 Calculator

**Table 73. Calculator Affect Items Reliability Statistic**

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .939 | 20 |

**Table 74. Calculator Affect Items Reliability Statistic if Item Removed**

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|
| RC_NA1_Calc | 117.65 | 318.810 | .737 | .935 |
| RC_NA2_Calc | 117.70 | 318.705 | .650 | .936 |
| RC_NA3_Calc | 117.67 | 323.602 | .650 | .936 |
| RC_NA4_Calc | 118.17 | 318.502 | .453 | .940 |
| RC_NA5_Calc | 117.70 | 319.194 | .699 | .935 |
| RC_NA6_Calc | 117.70 | 317.061 | .727 | .935 |
| RC_NA7_Calc | 117.59 | 322.426 | .738 | .935 |
| RC_NA8_Calc | 117.63 | 329.216 | .530 | .938 |
| RC_NA9_Calc | 117.67 | 323.291 | .676 | .936 |
| RC_NA10_Calc | 117.41 | 328.292 | .708 | .936 |
| PA1_Calc | 118.15 | 312.710 | .633 | .936 |
| PA2_Calc | 117.85 | 310.932 | .790 | .933 |
| PA3_Calc | 118.15 | 309.732 | .657 | .935 |
| PA4_Calc | 118.15 | 299.910 | .735 | .934 |
| PA5_Calc | 118.22 | 312.885 | .544 | .938 |
| PA6_Calc | 118.09 | 312.881 | .634 | .936 |
| PA7_Calc | 118.67 | 299.469 | .630 | .937 |
| PA8_Calc | 118.20 | 307.050 | .766 | .933 |
| PA9_Calc | 118.07 | 318.773 | .507 | .938 |
| PA10_Calc | 118.04 | 300.309 | .814 | .932 |

L.5.1.2 Electronic cigarette

**Table 75. Electronic Cigarette Affect Items Reliability Statistic**

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .955 | 20 |

**Table 76. Electronic Cigarette Affect Items Reliability Statistic if Item Removed**

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|
| RC_NA1_Ecig | 44.65 | 431.521 | .881 | .950 |
| RC_NA2_Ecig | 44.30 | 428.394 | .760 | .952 |
| RC_NA3_Ecig | 44.63 | 438.194 | .732 | .952 |
| RC_NA4_Ecig | 44.72 | 444.207 | .608 | .954 |
| RC_NA5_Ecig | 44.22 | 431.329 | .616 | .955 |
| RC_NA6_Ecig | 44.93 | 432.951 | .845 | .950 |
| RC_NA7_Ecig | 44.89 | 437.299 | .812 | .951 |
| RC_NA8_Ecig | 44.54 | 432.520 | .733 | .952 |
| RC_NA9_Ecig | 44.54 | 428.120 | .859 | .950 |
| RC_NA10_Ecig | 44.00 | 428.978 | .745 | .952 |
| PA1_Ecig | 45.43 | 450.696 | .791 | .952 |
| PA2_Ecig | 44.93 | 445.796 | .753 | .952 |
| PA3_Ecig | 45.17 | 451.791 | .570 | .954 |
| PA4_Ecig | 45.17 | 446.458 | .665 | .953 |
| PA5_Ecig | 45.41 | 447.670 | .785 | .952 |
| PA6_Ecig | 44.35 | 449.432 | .466 | .956 |
| PA7_Ecig | 45.30 | 449.683 | .676 | .953 |
| PA8_Ecig | 45.37 | 451.660 | .706 | .953 |
| PA9_Ecig | 44.72 | 441.274 | .648 | .953 |
| PA10_Ecig | 44.59 | 442.870 | .642 | .953 |

L.5.1.3 Brushing your teeth

**Table 77. Brushing Your Teeth Affect Items Reliability Statistic**

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .951 | 20 |

**Table 78. Brushing Your Teeth Affect Items Reliability Statistic if Item Removed**

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|
| RC_NA1_BrTeeth | 122.50 | 287.722 | .714 | .948 |
| RC_NA2_BrTeeth | 122.39 | 291.577 | .711 | .949 |
| RC_NA3_BrTeeth | 122.50 | 287.944 | .822 | .948 |
| RC_NA4_BrTeeth | 122.74 | 279.442 | .698 | .948 |
| RC_NA5_BrTeeth | 122.59 | 292.114 | .554 | .950 |
| RC_NA6_BrTeeth | 122.57 | 296.207 | .441 | .951 |
| RC_NA7_BrTeeth | 122.50 | 300.078 | .450 | .951 |
| RC_NA8_BrTeeth | 122.37 | 300.771 | .504 | .951 |
| RC_NA9_BrTeeth | 122.52 | 287.944 | .613 | .949 |
| RC_NA10_BrTeeth | 122.41 | 290.826 | .708 | .949 |
| PA1_BrTeeth | 122.72 | 267.274 | .922 | .944 |
| PA2_BrTeeth | 122.89 | 279.655 | .542 | .952 |
| PA3_BrTeeth | 123.07 | 261.618 | .870 | .945 |
| PA4_BrTeeth | 122.93 | 265.707 | .816 | .946 |
| PA5_BrTeeth | 122.80 | 266.872 | .915 | .944 |
| PA6_BrTeeth | 122.76 | 290.542 | .436 | .952 |
| PA7_BrTeeth | 122.85 | 271.732 | .807 | .946 |
| PA8_BrTeeth | 122.65 | 279.921 | .821 | .947 |
| PA9_BrTeeth | 122.85 | 274.576 | .693 | .948 |
| PA10_BrTeeth | 122.87 | 267.716 | .861 | .945 |

L.5.1.4 Drinking until you are blackout drunk

**Table 79. Drinking Until Blackout Drunk Affect Items Reliability Statistic**

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .937 | 19 |

**Table 80. Drinking Until Blackout Drunk Affect Items Reliability Statistic if Item Removed**

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|
| RC_NA1_Drunk | 32.17 | 223.214 | .678 | .933 |
| RC_NA2_Drunk | 31.93 | 217.529 | .650 | .934 |
| RC_NA3_Drunk | 32.07 | 218.862 | .687 | .933 |
| RC_NA4_Drunk | 32.20 | 222.783 | .616 | .935 |
| RC_NA5_Drunk | 32.39 | 228.066 | .791 | .933 |
| RC_NA6_Drunk | 32.37 | 232.238 | .431 | .938 |
| RC_NA7_Drunk | 32.02 | 223.400 | .549 | .936 |
| RC_NA8_Drunk | 32.04 | 225.198 | .522 | .937 |
| RC_NA9_Drunk | 32.35 | 223.254 | .739 | .932 |
| RC_NA10_Drunk | 32.15 | 213.821 | .893 | .929 |
| PA1_Drunk | 32.48 | 228.433 | .617 | .935 |
| PA3_Drunk | 32.54 | 230.431 | .791 | .933 |
| PA4_Drunk | 32.59 | 231.670 | .848 | .933 |
| PA5_Drunk | 32.28 | 223.452 | .676 | .933 |
| PA6_Drunk | 31.78 | 218.974 | .549 | .938 |
| PA7_Drunk | 32.43 | 228.296 | .574 | .935 |
| PA8_Drunk | 32.46 | 228.654 | .674 | .934 |
| PA9_Drunk | 32.33 | 223.825 | .771 | .932 |
| PA10_Drunk | 32.20 | 219.894 | .693 | .933 |

All items were retained for the pilot from the reliability analysis given that the reliability is above 0.9 and to ensure that the power and sample size analysis will accurately capture the needed sample size to detect a difference between the low and high tasks/technologies if all items are included in the final scale.

### *L.5.2 Probability x Severity Items*

#### L.5.2.1 Calculator

**Table 81. Calculator Probability x Severity Items Reliability Statistic**

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| .957 | .965 | 11 |

**Table 82. Calculator Probability x Severity Items Reliability Statistic if Item Removed**

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|---|
| PxSRisky_Calc_Total | 12.0761 | 18.518 | .690 | . | .958 |
| PXSCatCalc_Total | 12.2891 | 19.076 | .798 | . | .954 |
| PXSDisCalc_Total | 12.3022 | 19.805 | .789 | . | .955 |
| PXSDesCalc_Total | 12.2261 | 18.863 | .796 | . | .953 |
| PXSTragicCalc_Total | 12.2891 | 18.935 | .934 | . | .950 |
| PXSSeveCalc_Total | 12.2630 | 19.020 | .849 | . | .952 |
| PXSDreadCalc_Total | 12.1826 | 17.464 | .787 | . | .956 |
| PXSAwfCalc_Total | 12.1913 | 17.964 | .821 | . | .953 |
| PXSBadCalc_Total | 12.2043 | 18.336 | .938 | . | .949 |
| PXSUnpleasCalc_Total | 12.1761 | 18.498 | .923 | . | .950 |
| PXSDissapCalc_Total | 12.0174 | 17.409 | .779 | . | .956 |

The determinant of the covariance matrix is zero or approximately zero. Statistics based on its inverse matrix cannot be computed and they are displayed as system missing values.

#### L.5.2.2 Electronic cigarette

**Table 83. Electronic Cigarette Probability x Severity Items Reliability Statistic**

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| .981 | .982 | 11 |

**Table 84. Electronic Cigarette Probability x Severity Items Reliability Statistic if Item Removed**

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|---|
| PXSRiskyEcig_Total | 32.0891 | 123.394 | .840 | .752 | .981 |
| PXSCatEcig_Total | 32.8870 | 120.137 | .885 | .905 | .980 |
| PXSDisEcig_Total | 32.8109 | 117.768 | .907 | .917 | .979 |
| PXSDesEcig_Total | 32.5174 | 118.584 | .857 | .823 | .981 |
| PXSTragicEcig_Total | 32.5891 | 117.613 | .931 | .896 | .979 |
| PXSSeveEcig_Total | 32.6783 | 117.430 | .924 | .920 | .979 |
| PXSDreadEcig_Total | 32.7152 | 117.329 | .860 | .816 | .981 |
| PXSAwfEcig_Total | 32.6000 | 116.865 | .938 | .936 | .978 |
| PXSBadEcig_Total | 32.4196 | 117.081 | .957 | .962 | .978 |
| PXSUnpleasEcig_Total | 32.4109 | 116.685 | .926 | .950 | .979 |
| PXSDissapEcig_Total | 32.4783 | 116.049 | .897 | .918 | .980 |

L.5.2.3 Brushing your teeth

**Table 85. Brushing Your Teeth Probability x Severity Items Reliability Statistic**

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| .994 | .995 | 11 |

**Table 86. Brushing Your Teeth Probability x Severity Items Reliability Statistic if Item Removed**

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|---|
| PXSRiskyBrTeeth_Total | 10.8737 | 11.000 | .922 | . | .994 |
| PXSCatBrTeeth_Total | 10.8596 | 10.329 | .925 | . | .995 |
| PXSDisBrTeeth_Total | 10.8867 | 10.885 | .976 | . | .993 |
| PXSDesBrTeeth_Total | 10.8659 | 10.589 | .989 | . | .993 |
| PXSTragicBrTeeth_Total | 10.8617 | 10.467 | .966 | . | .993 |
| PXSSeveBrTeeth_Total | 10.8572 | 10.573 | .990 | . | .993 |
| PXSDreadBrTeeth_Total | 10.8704 | 10.819 | .976 | . | .993 |
| PXSAwfBrTeeth_Total | 10.8637 | 10.706 | .995 | . | .993 |
| PXSBadBrTeeth_Total | 10.8680 | 10.819 | .984 | . | .993 |
| PXSUnpleasBrTeeth_Total | 10.8487 | 10.836 | .972 | . | .993 |
| PXSDissapBrTeeth_Total | 10.8530 | 10.749 | .978 | . | .993 |

The determinant of the covariance matrix is zero or approximately zero. Statistics based on its inverse matrix cannot be computed and they are displayed as system missing values.

### A.5.2.4 Drinking until you are blackout drunk

**Table 87. Drinking Until Blackout Drunk Probability x Severity Items Reliability Statistic**

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| .977 | .977 | 11 |

**Table 88. Drinking Until Blackout Drunk Probability x Severity Items Reliability Statistic if Item Removed**

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|---|
| PXSRiskyDrunk_Total | 38.1957 | 75.491 | .729 | .750 | .979 |
| PXSCatDrunk_Total | 38.7217 | 69.253 | .886 | .923 | .975 |
| PXSDisDrunk_Total | 38.6848 | 69.295 | .934 | .926 | .973 |
| PXSDesDrunk_Total | 38.5109 | 70.862 | .917 | .889 | .974 |
| PXSTragicDrunk_Total | 38.8609 | 69.307 | .886 | .872 | .975 |
| PXSSeveDrunk_Total | 38.6674 | 69.162 | .891 | .863 | .974 |
| PXSDreadDrunk_Total | 38.6565 | 70.611 | .859 | .805 | .975 |
| PXSAwfDrunk_Total | 38.6739 | 68.675 | .950 | .940 | .973 |
| PXSBadDrunk_Total | 38.4891 | 70.760 | .941 | .934 | .973 |
| PXSUnpleasDrunk_Total | 38.3652 | 71.733 | .855 | .871 | .975 |
| PXSDissapDrunk_Total | 38.4565 | 69.807 | .851 | .833 | .976 |

All items were retained for the pilot from the reliability analysis given that the reliability is above 0.9 and to ensure that the power and sample size analysis will accurately capture the needed sample size to detect a difference between the low and high tasks/technologies if all items are included in the final scale.

## L.6 T-test

### *L.6.1 Affect Items*

#### L.6.1.1 Perceived Relational Risk: Technology Comparison

**Table 89. Affect Items Technology Comparison: Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | Affect_Calc | 124.13 | 46 | 18.658 | 2.751 |
| | Affect_Ecig | 47.15 | 46 | 22.068 | 3.254 |

**Table 90. Affect Items Technology Comparison: Paired Samples T-Test**

| | Paired Differences | t | df |
|---|---|---|---|

| | | | | | 95% Confidence Interval of the Difference | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | Lower | Upper | | | Sig. (2-tailed) |
| Pair 1 | Affect_Calc - Affect_Ecig | 76.978 | 28.981 | 4.273 | 68.372 | 85.585 | 18.015 | 45 | .000 |

**Table 91. Affect Items Technology Comparison: Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | Affect_Calc & Affect_Ecig | 46 | -.006 | .969 |

## L.6.1.2 Perceived Situational Risk: Task/Situation Comparison

**Table 92. Affect Items Task/Situation Comparison: Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | BrTeeth | 122.89 | 46 | 16.723 | 2.466 |
| | Affect_Drunk | 34.04 | 46 | 15.782 | 2.327 |

**Table 93. Affect Items Task/Situation Comparison: Paired Samples T-Test**

| | | Paired Differences | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | 95% Confidence Interval of the Difference | | | | |
| | | Mean | Std. Deviation | Std. Error Mean | Low.er | Upper | t | df | Sig. (2-tailed) |
| Pair 1 | BrTeeth - Affect_Drunk | 88.848 | 25.575 | 3.771 | 81.253 | 96.443 | 23.562 | 45 | .000 |

**Table 94. Affect Items Task/Situation Comparison: Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | BrTeeth & Affect_Drunk | 46 | -.238 | .112 |

*L.6.2 Probability x Severity Items*

L.6.2.1 Perceived Relational Risk: Technology Comparison

**Table 95. Probability x Severity Items Technology Comparison: Paired Samples Statistic**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | Calc_Total | 13.4217 | 46 | 4.72572 | .69677 |
| | Ecig_Total | 35.8196 | 46 | 11.94221 | 1.76078 |

**Table 96. Probability x Severity Items Technology Comparison: Paired Samples T-test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference Lower | Upper | | | |
| Pair 1 | Calc_Total - Ecig_Total | -22.39783 | 11.84722 | 1.74678 | -25.91602 | -18.87964 | -12.822 | 45 | .000 |

**Table 97. Probability x Severity Items Technology Comparison: Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | Calc_Total & Ecig_Total | 46 | .218 | .146 |

A.6.2.2 Perceived Situational Risk: Task/Situation Comparison

**Table 98. Probability x Severity Items Task/Situation Comparison: Paired Samples Statistics**

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | BrTeeth_Total | 11.9509 | 46 | 3.59817 | .53052 |
| | Drunk_Total | 42.4283 | 46 | 9.22219 | 1.35974 |

**Table 99. Probability x Severity Items Task/Situation Comparison: Paired Samples T-Test**

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | 95% Confidence Interval of the Difference | | | | |
| | | Mean | Std. Deviation | Std. Error Mean | Lower | Upper | | | |
| Pair 1 | BrTeeth_Total - Drunk_Total | -30.47739 | 10.44838 | 1.54053 | -33.58018 | -27.37461 | -19.784 | 45 | .000 |

**Table 100. Probability x Severity Items Task/Situation Comparison: Paired Samples Correlations**

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | BrTeeth_Total & Drunk_Total | 46 | -.168 | .263 |

## L.7 Power Analysis

All power analyses were run using G*power.

*L.7.1 Affect Items*

L.7.1.1 Perceived Relational Risk: Technology Comparison

Effect size dz= 2.65597

Power= 1.00

L.7.1.2 Perceived Situational Risk: Task/Situation Comparison

Effect size dz= 3.473361

Power= 1.00

*L.7.2 Probability x Severity Items*

L.7.2.1 Perceived Relational Risk: Technology Comparison

Effect size dz= 1.89

Power= 1.00

L.7.2.2 Perceived Situational Risk: Task/Situation Comparison

Effect size dz= 2.917

Power= 1.00

## L.8 Sample Size Analysis

All sample size analyses were run using G*power.

*L.8.1 Affect Items*

L.8.1.1 Perceived Relational Risk: Technology Comparison

Effect size dz= 3.473361

Total sample size= 4

Actual Power= 0.9989378

L.8.1.2 Perceived Situational Risk: Task/Situation Comparison

Effect size dz= 2.6559698

Total sample size= 6

Actual Power= 0.9989378

*L.8.2 Probability x Severity Items*

L.8.2.1 Perceived Relational Risk: Technology Comparison

Effect size dz= 1.89

Total sample size= 8

Actual Power= 0.994867

L.8.2.2 Perceived Situational Risk: Task/Situation Comparison

Effect size dz= 2.917

Sample size=5

Actual Power= 0.9966307

# APPENDIX M. PARALLEL ANALYSIS PROGRAM CODE

```
Parallel Analysis Program For Raw Data and Data Permutations.

* To run this program you need to first specify the data
 for analysis and then RUN, all at once, the commands
 from the MATRIX statement to the END MATRIX statement.

* This program conducts parallel analyses on data files in which
 the rows of the data matrix are cases/individuals and the
 columns are variables; Data are read/entered into the program
 using the GET command (see the GET command below); The GET
 command reads an SPSS data file, which can be either the
 current, active SPSS data file or a previously saved data file;
 A valid filename/location must be specified on the GET command;
 A subset of variables for the analyses can be specified by using
 the "/ VAR =" subcommand with the GET statement; There can be
 no missing values.

* You must also specify:
 -- the # of parallel data sets for the analyses;
 -- the desired percentile of the distribution and random
   data eigenvalues;
 -- whether principal components analyses or principal axis/common
   factor analysis are to be conducted, and
 -- whether normally distributed random data generation or
   permutations of the raw data set are to be used in the
   parallel analyses.

* Permutations of the raw data set can be time consuming;
 Each parallel data set is based on column-wise random shufflings
 of the values in the raw data matrix using Castellan's (1992,
 BRMIC, 24, 72-77) algorithm; The distributions of the original
 raw variables are exactly preserved in the shuffled versions used
 in the parallel analyses; Permutations of the raw data set are
 thus highly accurate and most relevant, especially in cases where
 the raw data are not normally distributed or when they do not meet
 the assumption of multivariate normality (see Longman & Holden,
 1992, BRMIC, 24, 493, for a Fortran version); If you would
 like to go this route, it is perhaps best to (1) first run a
 normally distributed random data generation parallel analysis to
 familiarize yourself with the program and to get a ballpark
 reference point for the number of factors/components;
 (2) then run a permutations of the raw data parallel analysis
 using a small number of datasets (e.g., 100), just to see how long
 the program takes to run; then (3) run a permutations of the raw
 data parallel analysis using the number of parallel data sets that
 you would like use for your final analyses; 1000 datasets are
 usually sufficient, although more datasets should be used if
 there are close calls.


*
```

```
set mxloops=9000 printback=off width=80 seed = 1953125.
matrix.

* Enter the name/location of the data file for analyses after "FILE =";
 If you specify "FILE = *", then the program will read the current,
 active SPSS data file; Alternatively, enter the name/location
 of a previously saved SPSS data file instead of "*";
 you can use the "/ VAR =" subcommand after "/ missing=omit"
 subcommand to select variables for the analyses.
GET raw / FILE = * / missing=omit / VAR = var1 to var9.

* Enter the desired number of parallel data sets here.
compute ndatsets = 100.

* Enter the desired percentile here.
compute percent = 75.

* Enter either
 1 for principal components analysis, or
 2 for principal axis/common factor analysis.
compute kind = 1 .

* Enter either
 1 for normally distributed random data generation parallel analysis,
or
 2 for permutations of the raw data set.
compute randtype = 1.


****************** End of user specifications. ******************

compute ncases  = nrow(raw).
compute nvars  = ncol(raw).

* principal components analysis & random normal data generation.
do if (kind = 1 and randtype = 1).
compute nm1 = 1 / (ncases-1).
compute vcv = nm1 * (sscp(raw) - ((t(csum(raw))*csum(raw))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute realeval = eval(d * vcv * d).
compute evals = make(nvars,ndatsets,-9999).
loop #nds = 1 to ndatsets.
compute x = sqrt(2 * (ln(uniform(ncases,nvars)) * -1) ) &*
      cos(6.283185 * uniform(ncases,nvars) ).
compute vcv = nm1 * (sscp(x) - ((t(csum(x))*csum(x))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute evals(:,#nds) = eval(d * vcv * d).
end loop.
end if.

* principal components analysis & raw data permutation.
do if (kind = 1 and randtype = 2).
compute nm1 = 1 / (ncases-1).
compute vcv = nm1 * (sscp(raw) - ((t(csum(raw))*csum(raw))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute realeval = eval(d * vcv * d).
compute evals = make(nvars,ndatsets,-9999).
```

```
loop #nds = 1 to ndatsets.
compute x = raw.
loop #c = 1 to nvars.
loop #r = 1 to (ncases -1).
compute k = trunc( (ncases - #r + 1) * uniform(1,1) + 1 ) + #r - 1.
compute d = x(#r,#c).
compute x(#r,#c) = x(k,#c).
compute x(k,#c) = d.
end loop.
end loop.
compute vcv = nm1 * (sscp(x) - ((t(csum(x))*csum(x))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute evals(:,#nds) = eval(d * vcv * d).
end loop.
end if.

* PAF/common factor analysis & random normal data generation.
do if (kind = 2 and randtype = 1).
compute nm1 = 1 / (ncases-1).
compute vcv = nm1 * (sscp(raw) - ((t(csum(raw))*csum(raw))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute cr = (d * vcv * d).
compute smc = 1 - (1 &/ diag(inv(cr)) ).
call setdiag(cr,smc).
compute realeval = eval(cr).
compute evals = make(nvars,ndatsets,-9999).
compute nm1 = 1 / (ncases-1).
loop #nds = 1 to ndatsets.
compute x = sqrt(2 * (ln(uniform(ncases,nvars)) * -1) ) &*
      cos(6.283185 * uniform(ncases,nvars) ).
compute vcv = nm1 * (sscp(x) - ((t(csum(x))*csum(x))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute r = d * vcv * d.
compute smc = 1 - (1 &/ diag(inv(r)) ).
call setdiag(r,smc).
compute evals(:,#nds) = eval(r).
end loop.
end if.

* PAF/common factor analysis & raw data permutation.
do if (kind = 2 and randtype = 2).
compute nm1 = 1 / (ncases-1).
compute vcv = nm1 * (sscp(raw) - ((t(csum(raw))*csum(raw))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute cr = (d * vcv * d).
compute smc = 1 - (1 &/ diag(inv(cr)) ).
call setdiag(cr,smc).
compute realeval = eval(cr).
compute evals = make(nvars,ndatsets,-9999).
compute nm1 = 1 / (ncases-1).
loop #nds = 1 to ndatsets.
compute x = raw.
loop #c = 1 to nvars.
loop #r = 1 to (ncases -1).
compute k = trunc( (ncases - #r + 1) * uniform(1,1) + 1 ) + #r - 1.
compute d = x(#r,#c).
compute x(#r,#c) = x(k,#c).
```

```
compute x(k,#c) = d.
end loop.
end loop.
compute vcv = nm1 * (sscp(x) - ((t(csum(x))*csum(x))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute r = d * vcv * d.
compute smc = 1 - (1 &/ diag(inv(r)) ).
call setdiag(r,smc).
compute evals(:,#nds) = eval(r).
end loop.
end if.

* identifying the eigenvalues corresponding to the desired percentile.
compute num = rnd((percent*ndatsets)/100).
compute results = { t(1:nvars), realeval, t(1:nvars), t(1:nvars) }.
loop #root = 1 to nvars.
compute ranks = rnkorder(evals(#root,:)).
loop #col = 1 to ndatsets.
do if (ranks(1,#col) = num).
compute results(#root,4) = evals(#root,#col).
break.
end if.
end loop.
end loop.
compute results(:,3) = rsum(evals) / ndatsets.

print /title="PARALLEL ANALYSIS:".
do if (kind = 1 and randtype = 1).
print /title="Principal Components & Random Normal Data Generation".
else if (kind = 1 and randtype = 2).
print /title="Principal Components & Raw Data Permutation".
else if (kind = 2 and randtype = 1).
print /title="PAF/Common Factor Analysis & Random Normal Data
Generation".
else if (kind = 2 and randtype = 2).
print /title="PAF/Common Factor Analysis & Raw Data Permutation".
end if.
compute specifs = {ncases; nvars; ndatsets; percent}.
print specifs /title="Specifications for this Run:"
 /rlabels="Ncases" "Nvars" "Ndatsets" "Percent".
print results
 /title="Raw Data Eigenvalues, & Mean & Percentile Random Data
Eigenvalues"
 /clabels="Root" "Raw Data" "Means" "Prcntyle" /format "f12.6".

do if  (kind = 2).
print / space = 1.
print /title="Warning: Parallel analyses of adjusted correlation
matrices".
print /title="eg, with SMCs on the diagonal, tend to indicate more
factors".
print /title="than warranted (Buja, A., & Eyuboglu, N., 1992, Remarks
on parallel".
print /title="analysis. Multivariate Behavioral Research, 27, 509-
540.).".
print /title="The eigenvalues for trivial, negligible factors in the
real".
```

```
print /title="data commonly surpass corresponding random data
eigenvalues".
print /title="for the same roots. The eigenvalues from parallel
analyses".
print /title="can be used to determine the real data eigenvalues that
are".
print /title="beyond chance, but additional procedures should then be
used".
print /title="to trim trivial factors.".
print / space = 2.
print /title="Principal components eigenvalues are often used to
determine".
print /title="the number of common factors. This is the default in
most".
print /title="statistical software packages, and it is the primary
practice".
print /title="in the literature. It is also the method used by many
factor".
print /title="analysis experts, including Cattell, who often examined".
print /title="principal components eigenvalues in his scree plots to
determine".
print /title="the number of common factors. But others believe this
common".
print /title="practice is wrong. Principal components eigenvalues are
based".
print /title="on all of the variance in correlation matrices, including
both".
print /title="the variance that is shared among variables and the
variances".
print /title="that are unique to the variables. In contrast,
principal".
print /title="axis eigenvalues are based solely on the shared
variance".
print /title="among the variables. The two procedures are
qualitatively".
print /title="different. Some therefore claim that the eigenvalues from
one".
print /title="extraction method should not be used to determine".
print /title="the number of factors for the other extraction method.".
print /title="The issue remains neglected and unsettled.".
end if.

compute root   = results(:,1).
compute rawdata = results(:,2).
compute percntyl = results(:,4).

save results /outfile= 'screedata.sav' / var=root rawdata means
percntyl .

end matrix.

* plots the eigenvalues, by root, for the real/raw data and for the
random data.
GET file= 'screedata.sav'.
TSPLOT VARIABLES= rawdata means percntyl /ID= root /NOLOG.
```

# APPENDIX N. BOOTSTRAP PARALLEL ANALYSIS OUTPUT

## N.1 Affect Items

### *N.1.1 Calculator*

```
Run MATRIX procedure:

PARALLEL ANALYSIS:

Principal Components & Random Normal Data Generation

Specifications for this Run:
Ncases  177
Nvars   20
Ndatsets 100
Percent  75

Raw Data Eigenvalues, & Mean & Percentile Random Data Eigenvalues
     Root   Raw Data    Means   Prcntyle
   1.000000  12.458976   1.643240   1.686502
   2.000000   1.821980   1.522202   1.554576
   3.000000   .916389   1.433673   1.461651
   4.000000   .725031   1.353435   1.376360
   5.000000   .571704   1.285185   1.303246
   6.000000   .450475   1.216207   1.238101
   7.000000   .430149   1.158487   1.175564
   8.000000   .377728   1.099150   1.114812
   9.000000   .350840   1.046242   1.063973
  10.000000   .280420   .993406   1.009410
  11.000000   .265181   .945033   .962616
  12.000000   .255429   .895146   .913452
  13.000000   .240964   .840680   .863454
  14.000000   .197174   .796049   .812446
  15.000000   .172247   .751990   .768051
  16.000000   .146082   .705539   .721680
  17.000000   .106876   .656118   .675107
  18.000000   .098168   .609105   .628340
  19.000000   .075523   .560365   .583412
  20.000000   .058665   .488749   .517647

Error # 34 in column 24. Text: screedata.sav
SPSS Statistics cannot access a file with the given file specification.
The
file specification is either syntactically invalid, specifies an
invalid
drive, specifies a protected directory, specifies a protected file, or
specifies a non-sharable file.
Execution of this command stops.

------ END MATRIX -----
```

### N.1.2 Electronic Cigarette

```
Run MATRIX procedure:

PARALLEL ANALYSIS:

Principal Components & Random Normal Data Generation

Specifications for this Run:
Ncases  177
Nvars   20
Ndatsets 100
Percent  75

Raw Data Eigenvalues, & Mean & Percentile Random Data Eigenvalues
     Root   Raw Data    Means   Prcntyle
   1.000000  12.905761   1.643240   1.686502
   2.000000   2.325314   1.522202   1.554576
   3.000000   .901302   1.433673   1.461651
   4.000000   .460419   1.353435   1.376360
   5.000000   .386099   1.285185   1.303246
   6.000000   .379519   1.216207   1.238101
   7.000000   .320164   1.158487   1.175564
   8.000000   .266173   1.099150   1.114812
   9.000000   .258605   1.046242   1.063973
  10.000000   .230259   .993406   1.009410
  11.000000   .225766   .945033   .962616
  12.000000   .208251   .895146   .913452
  13.000000   .199299   .840680   .863454
  14.000000   .180474   .796049   .812446
  15.000000   .164218   .751990   .768051
  16.000000   .160431   .705539   .721680
  17.000000   .138569   .656118   .675107
  18.000000   .117681   .609105   .628340
  19.000000   .092666   .560365   .583412
  20.000000   .079029   .488749   .517647

Error # 34 in column 24. Text: screedata.sav
SPSS Statistics cannot access a file with the given file specification.
The
file specification is either syntactically invalid, specifies an
invalid
drive, specifies a protected directory, specifies a protected file, or
specifies a non-sharable file.
Execution of this command stops.

------ END MATRIX -----
```

### N.1.3 Listening to Music

```
Run MATRIX procedure:

PARALLEL ANALYSIS:
```

```
Principal Components & Random Normal Data Generation

Specifications for this Run:
Ncases  177
Nvars   20
Ndatsets 100
Percent  75

Raw Data Eigenvalues, & Mean & Percentile Random Data Eigenvalues
     Root   Raw Data    Means   Prcntyle
   1.000000  12.420739   1.643240   1.686502
   2.000000   2.743486   1.522202   1.554576
   3.000000   .665453   1.433673   1.461651
   4.000000   .574255   1.353435   1.376360
   5.000000   .537945   1.285185   1.303246
   6.000000   .446234   1.216207   1.238101
   7.000000   .393032   1.158487   1.175564
   8.000000   .356541   1.099150   1.114812
   9.000000   .291166   1.046242   1.063973
  10.000000   .285740   .993406   1.009410
  11.000000   .237609   .945033   .962616
  12.000000   .222662   .895146   .913452
  13.000000   .169415   .840680   .863454
  14.000000   .150205   .796049   .812446
  15.000000   .125983   .751990   .768051
  16.000000   .103089   .705539   .721680
  17.000000   .088552   .656118   .675107
  18.000000   .078215   .609105   .628340
  19.000000   .067666   .560365   .583412
  20.000000   .042017   .488749   .517647

Error # 34 in column 24. Text: screedata.sav
SPSS Statistics cannot access a file with the given file specification.
The
file specification is either syntactically invalid, specifies an
invalid
drive, specifies a protected directory, specifies a protected file, or
specifies a non-sharable file.
Execution of this command stops.

------ END MATRIX -----
```

### *N.1.4 Drinking Until Blackout Drunk*

```
Run MATRIX procedure:

PARALLEL ANALYSIS:

Principal Components & Random Normal Data Generation

Specifications for this Run:
Ncases  177
Nvars   20
Ndatsets 100
```

```
Percent  75

Raw Data Eigenvalues, & Mean & Percentile Random Data Eigenvalues
     Root   Raw Data    Means   Prcntyle
   1.000000  13.061108   1.643240   1.686502
   2.000000   2.170405   1.522202   1.554576
   3.000000   .628940   1.433673   1.461651
   4.000000   .594853   1.353435   1.376360
   5.000000   .464084   1.285185   1.303246
   6.000000   .429322   1.216207   1.238101
   7.000000   .326745   1.158487   1.175564
   8.000000   .309440   1.099150   1.114812
   9.000000   .295958   1.046242   1.063973
  10.000000   .238649   .993406   1.009410
  11.000000   .223603   .945033   .962616
  12.000000   .196812   .895146   .913452
  13.000000   .186272   .840680   .863454
  14.000000   .170513   .796049   .812446
  15.000000   .142377   .751990   .768051
  16.000000   .138923   .705539   .721680
  17.000000   .127981   .656118   .675107
  18.000000   .110265   .609105   .628340
  19.000000   .099890   .560365   .583412
  20.000000   .083860   .488749   .517647

Error # 34 in column 24. Text: screedata.sav
SPSS Statistics cannot access a file with the given file specification.
The
file specification is either syntactically invalid, specifies an
invalid
drive, specifies a protected directory, specifies a protected file, or
specifies a non-sharable file.
Execution of this command stops.

------ END MATRIX -----
```

## N.2 Probability x Severity Items

### *N.1.1 Calculator*

```
Run MATRIX procedure:

PARALLEL ANALYSIS:

Principal Components & Random Normal Data Generation

Specifications for this Run:
Ncases  177
Nvars   11
Ndatsets 100
Percent  75

Raw Data Eigenvalues, & Mean & Percentile Random Data Eigenvalues
```

```
     Root   Raw Data    Means   Prcntyle
   1.000000  10.310641   1.418642   1.450090
   2.000000    .218381   1.298755   1.332394
   3.000000    .153702   1.214077   1.243406
   4.000000    .120179   1.130306   1.152230
   5.000000    .059649   1.052544   1.073673
   6.000000    .040372    .980462   1.000768
   7.000000    .034077    .911749    .935212
   8.000000    .023100    .849690    .867579
   9.000000    .017948    .790767    .810007
  10.000000    .014981    .720714    .742559
  11.000000    .006970    .632292    .660111

Error # 34 in column 24. Text: screedata.sav
SPSS Statistics cannot access a file with the given file specification.
The
file specification is either syntactically invalid, specifies an
invalid
drive, specifies a protected directory, specifies a protected file, or
specifies a non-sharable file.
Execution of this command stops.

------ END MATRIX -----
```

### *N.2.2 Electronic Cigarette*

```
Run MATRIX procedure:

PARALLEL ANALYSIS:

Principal Components & Random Normal Data Generation

Specifications for this Run:
Ncases  177
Nvars   11
Ndatsets 100
Percent  75

Raw Data Eigenvalues, & Mean & Percentile Random Data Eigenvalues
     Root   Raw Data    Means   Prcntyle
   1.000000   9.956902   1.418642   1.450090
   2.000000    .321274   1.298755   1.332394
   3.000000    .214237   1.214077   1.243406
   4.000000    .141861   1.130306   1.152230
   5.000000    .088505   1.052544   1.073673
   6.000000    .064035    .980462   1.000768
   7.000000    .061186    .911749    .935212
   8.000000    .051170    .849690    .867579
   9.000000    .044082    .790767    .810007
  10.000000    .032800    .720714    .742559
  11.000000    .023947    .632292    .660111

Error # 34 in column 24. Text: screedata.sav
SPSS Statistics cannot access a file with the given file specification.
The
```

```
file specification is either syntactically invalid, specifies an
invalid
drive, specifies a protected directory, specifies a protected file, or
specifies a non-sharable file.
Execution of this command stops.

------ END MATRIX -----
```

### N.2.3 Listening to Music

```
Run MATRIX procedure:

PARALLEL ANALYSIS:

Principal Components & Random Normal Data Generation

Specifications for this Run:
Ncases  177
Nvars   11
Ndatsets 100
Percent  75

Raw Data Eigenvalues, & Mean & Percentile Random Data Eigenvalues
     Root   Raw Data    Means   Prcntyle
   1.000000   9.785127   1.418642   1.450090
   2.000000   .476307   1.298755   1.332394
   3.000000   .240219   1.214077   1.243406
   4.000000   .117332   1.130306   1.152230
   5.000000   .096742   1.052544   1.073673
   6.000000   .093357   .980462   1.000768
   7.000000   .072820   .911749   .935212
   8.000000   .041342   .849690   .867579
   9.000000   .031859   .790767   .810007
  10.000000   .027306   .720714   .742559
  11.000000   .017590   .632292   .660111

Error # 34 in column 24. Text: screedata.sav
SPSS Statistics cannot access a file with the given file specification.
The
file specification is either syntactically invalid, specifies an
invalid
drive, specifies a protected directory, specifies a protected file, or
specifies a non-sharable file.
Execution of this command stops.

------ END MATRIX -----
```

### N.2.4 Drinking Until Blackout Drunk

```
Run MATRIX procedure:

PARALLEL ANALYSIS:

Principal Components & Random Normal Data Generation
```

```
Specifications for this Run:
Ncases  177
Nvars   11
Ndatsets 100
Percent  75

Raw Data Eigenvalues, & Mean & Percentile Random Data Eigenvalues
     Root   Raw Data    Means   Prcntyle
   1.000000   9.186174   1.418642   1.450090
   2.000000   .578221   1.298755   1.332394
   3.000000   .445016   1.214077   1.243406
   4.000000   .181275   1.130306   1.152230
   5.000000   .138826   1.052544   1.073673
   6.000000   .122886   .980462   1.000768
   7.000000   .096680   .911749   .935212
   8.000000   .092171   .849690   .867579
   9.000000   .073800   .790767   .810007
  10.000000   .051761   .720714   .742559
  11.000000   .033191   .632292   .660111

Error # 34 in column 24. Text: screedata.sav
SPSS Statistics cannot access a file with the given file specification.
The
file specification is either syntactically invalid, specifies an
invalid
drive, specifies a protected directory, specifies a protected file, or
specifies a non-sharable file.
Execution of this command stops.

------ END MATRIX -----
```

# APPENDIX O. FACTOR ANALYSIS OUTPUT

## O.1 Affect Items

### *O.1.1 Factor Analysis: 2 Factors with Varimax Rotation*

## Factor Analysis

**Descriptive Statistics**

| | Mean | Std. Deviation | Analysis N |
|---|---|---|---|
| NA1_Calc | 1.93 | 1.631 | 177 |
| NA2_Calc | 1.72 | 1.457 | 177 |
| NA3_Calc | 1.90 | 1.609 | 177 |
| NA4_Calc | 1.76 | 1.374 | 177 |
| NA5_Calc | 2.00 | 1.672 | 177 |
| NA6_Calc | 2.06 | 1.719 | 177 |
| NA7_Calc | 2.05 | 1.680 | 177 |
| NA8_Calc | 1.82 | 1.595 | 177 |
| NA9_Calc | 1.97 | 1.728 | 177 |
| NA1_Calc | 1.85 | 1.583 | 177 |
| PA1_Calc | 6.18 | 1.378 | 177 |
| PA2_Calc | 6.15 | 1.508 | 177 |
| PA3_Calc | 6.11 | 1.430 | 177 |
| PA4_Calc | 5.98 | 1.556 | 177 |
| PA5_Calc | 5.82 | 1.728 | 177 |
| PA6_Calc | 6.22 | 1.169 | 177 |
| PA7_Calc | 6.14 | 1.467 | 177 |
| PA8_Calc | 5.81 | 1.436 | 177 |
| PA9_Calc | 6.15 | 1.431 | 177 |
| PA1_Calc | 6.07 | 1.549 | 177 |

**Communalities**

| | Initial | Extraction |
|---|---|---|
| NA1_Calc | .913 | .865 |

| | | |
|---|---|---|
| NA2_Calc | .844 | .828 |
| NA3_Calc | .870 | .849 |
| NA4_Calc | .894 | .886 |
| NA5_Calc | .884 | .835 |
| NA6_Calc | .751 | .689 |
| NA7_Calc | .702 | .641 |
| NA8_Calc | .894 | .890 |
| NA9_Calc | .785 | .773 |
| NA1_Calc | .812 | .773 |
| PA1_Calc | .730 | .699 |
| PA2_Calc | .601 | .593 |
| PA3_Calc | .675 | .682 |
| PA4_Calc | .640 | .534 |
| PA5_Calc | .545 | .413 |
| PA6_Calc | .703 | .627 |
| PA7_Calc | .615 | .532 |
| PA8_Calc | .621 | .488 |
| PA9_Calc | .598 | .569 |
| PA1_Calc | .531 | .492 |

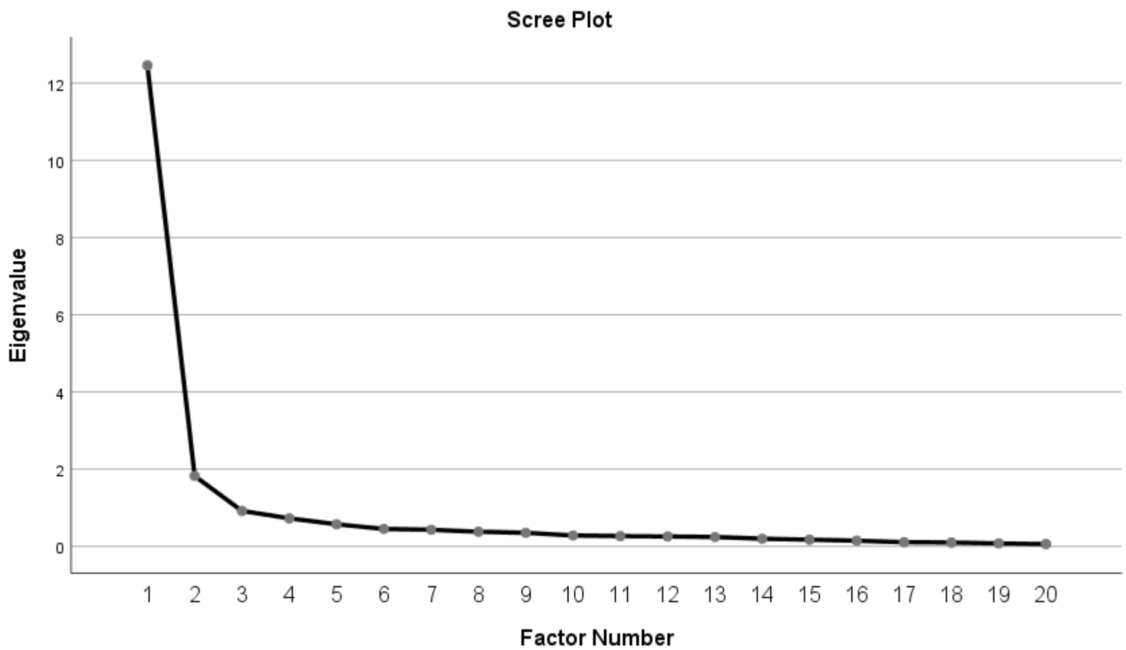
Extraction Method: Principal Axis Factoring.

**Total Variance Explained**

| Factor | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 12.459 | 62.295 | 62.295 | 12.177 | 60.887 | 60.887 | 7.688 | 38.441 | 38.441 |
| 2 | 1.822 | 9.110 | 71.405 | 1.481 | 7.404 | 68.291 | 5.970 | 29.850 | 68.291 |
| 3 | .916 | 4.582 | 75.987 | | | | | | |
| 4 | .725 | 3.625 | 79.612 | | | | | | |
| 5 | .572 | 2.859 | 82.470 | | | | | | |
| 6 | .450 | 2.252 | 84.723 | | | | | | |
| 7 | .430 | 2.151 | 86.874 | | | | | | |
| 8 | .378 | 1.889 | 88.762 | | | | | | |
| 9 | .351 | 1.754 | 90.516 | | | | | | |
| 10 | .280 | 1.402 | 91.918 | | | | | | |
| 11 | .265 | 1.326 | 93.244 | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12 | .255 | 1.277 | 94.522 | | | | | | |
| 13 | .241 | 1.205 | 95.726 | | | | | | |
| 14 | .197 | .986 | 96.712 | | | | | | |
| 15 | .172 | .861 | 97.573 | | | | | | |
| 16 | .146 | .730 | 98.304 | | | | | | |
| 17 | .107 | .534 | 98.838 | | | | | | |
| 18 | .098 | .491 | 99.329 | | | | | | |
| 19 | .076 | .378 | 99.707 | | | | | | |
| 20 | .059 | .293 | 100.000 | | | | | | |

Extraction Method: Principal Axis Factoring.




**Factor Matrix**[a]

| | Factor | |
|---|---|---|
| | 1 | 2 |
| NA1_Calc | .905 | .215 |
| NA2_Calc | .880 | .234 |
| NA3_Calc | .884 | .260 |
| NA4_Calc | .913 | .226 |
| NA5_Calc | .893 | .193 |

| | | |
|---|---|---|
| NA6_Calc | .804 | .205 |
| NA7_Calc | .779 | .186 |
| NA8_Calc | .889 | .316 |
| NA9_Calc | .835 | .276 |
| NA1_Calc | .846 | .240 |
| PA1_Calc | -.750 | .370 |
| PA2_Calc | -.685 | .352 |
| PA3_Calc | -.769 | .303 |
| PA4_Calc | -.663 | .307 |
| PA5_Calc | -.574 | .290 |
| PA6_Calc | -.764 | .207 |
| PA7_Calc | -.650 | .331 |
| PA8_Calc | -.654 | .245 |
| PA9_Calc | -.714 | .242 |
| PA1_Calc | -.616 | .335 |

Extraction Method: Principal Axis Factoring.

a. 2 factors extracted. 4 iterations required.

### Rotated Factor Matrix[a]

| | Factor | |
|---|---|---|
| | 1 | 2 |
| NA1_Calc | .829 | -.422 |
| NA2_Calc | .821 | -.392 |
| NA3_Calc | .842 | -.375 |
| NA4_Calc | .842 | -.419 |
| NA5_Calc | .805 | -.431 |
| NA6_Calc | .746 | -.365 |
| NA7_Calc | .714 | -.363 |
| NA8_Calc | .882 | -.336 |
| NA9_Calc | .815 | -.331 |
| NA1_Calc | .800 | -.365 |
| PA1_Calc | -.332 | .768 |
| PA2_Calc | -.294 | .712 |
| PA3_Calc | -.389 | .729 |
| PA4_Calc | -.306 | .663 |
| PA5_Calc | -.250 | .592 |

| | | |
|---|---|---|
| PA6_Calc | -.449 | .653 |
| PA7_Calc | -.281 | .673 |
| PA8_Calc | -.340 | .611 |
| PA9_Calc | -.387 | .647 |
| PA1_Calc | -.252 | .654 |

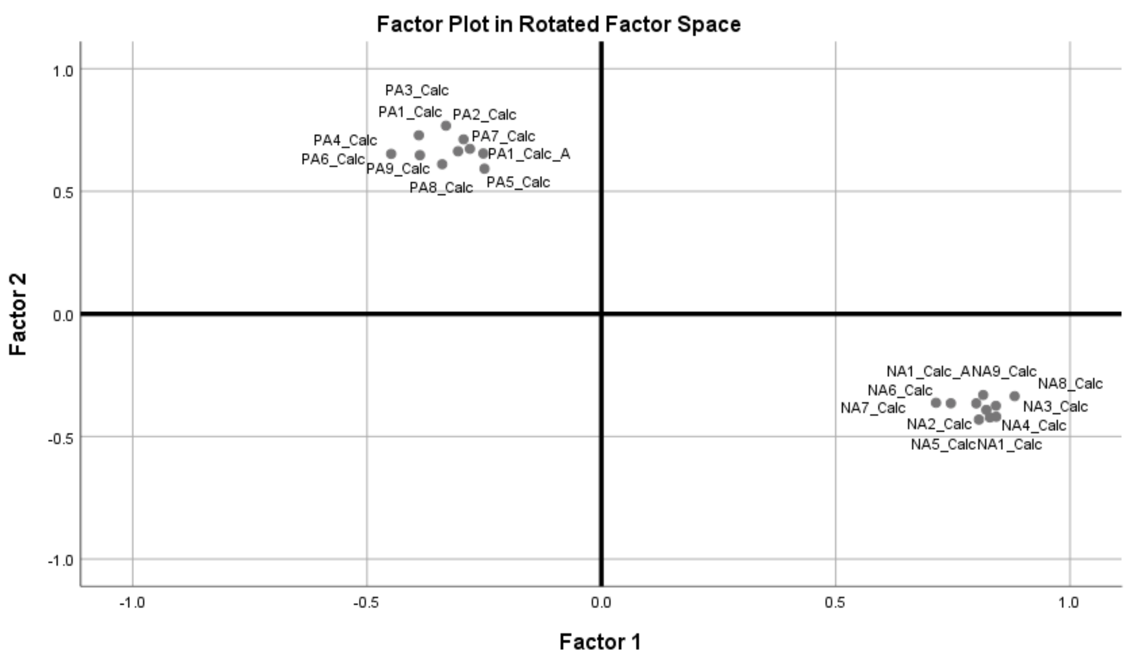
Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 3 iterations.

**Factor Transformation Matrix**

| Factor | 1 | 2 |
|---|---|---|
| 1 | .762 | -.648 |
| 2 | .648 | .762 |

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.




# Factor Analysis

**Descriptive Statistics**

| | Mean | Std. Deviation | Analysis N |
|---|---|---|---|
| NA1_Ecig | 4.90 | 1.870 | 177 |
| NA2_Ecig | 4.37 | 2.019 | 177 |
| NA3_Ecig | 4.47 | 1.904 | 177 |
| NA4_Ecig | 4.52 | 1.963 | 177 |
| NA5_Ecig | 4.92 | 1.861 | 177 |
| NA6_Ecig | 5.03 | 1.724 | 177 |
| NA7_Ecig | 5.00 | 1.692 | 177 |
| NA8_Ecig | 4.16 | 1.924 | 177 |
| NA9_Ecig | 4.58 | 1.869 | 177 |
| NA1_Ecig | 3.92 | 1.965 | 177 |
| PA1_Ecig | 3.29 | 1.943 | 177 |
| PA2_Ecig | 3.06 | 1.858 | 177 |
| PA3_Ecig | 2.85 | 1.851 | 177 |
| PA4_Ecig | 2.95 | 1.905 | 177 |
| PA5_Ecig | 2.81 | 1.707 | 177 |
| PA6_Ecig | 3.55 | 1.951 | 177 |
| PA7_Ecig | 3.17 | 1.878 | 177 |
| PA8_Ecig | 2.98 | 1.771 | 177 |
| PA9_Ecig | 3.24 | 1.853 | 177 |
| PA1_Ecig | 3.37 | 1.979 | 177 |

**Communalities**

| | Initial | Extraction |
|---|---|---|
| NA1_Ecig | .769 | .708 |
| NA2_Ecig | .785 | .752 |
| NA3_Ecig | .801 | .727 |
| NA4_Ecig | .761 | .722 |
| NA5_Ecig | .764 | .698 |
| NA6_Ecig | .800 | .686 |
| NA7_Ecig | .759 | .621 |
| NA8_Ecig | .786 | .746 |
| NA9_Ecig | .884 | .895 |
| NA1_Ecig | .785 | .721 |
| PA1_Ecig | .772 | .768 |
| PA2_Ecig | .753 | .752 |

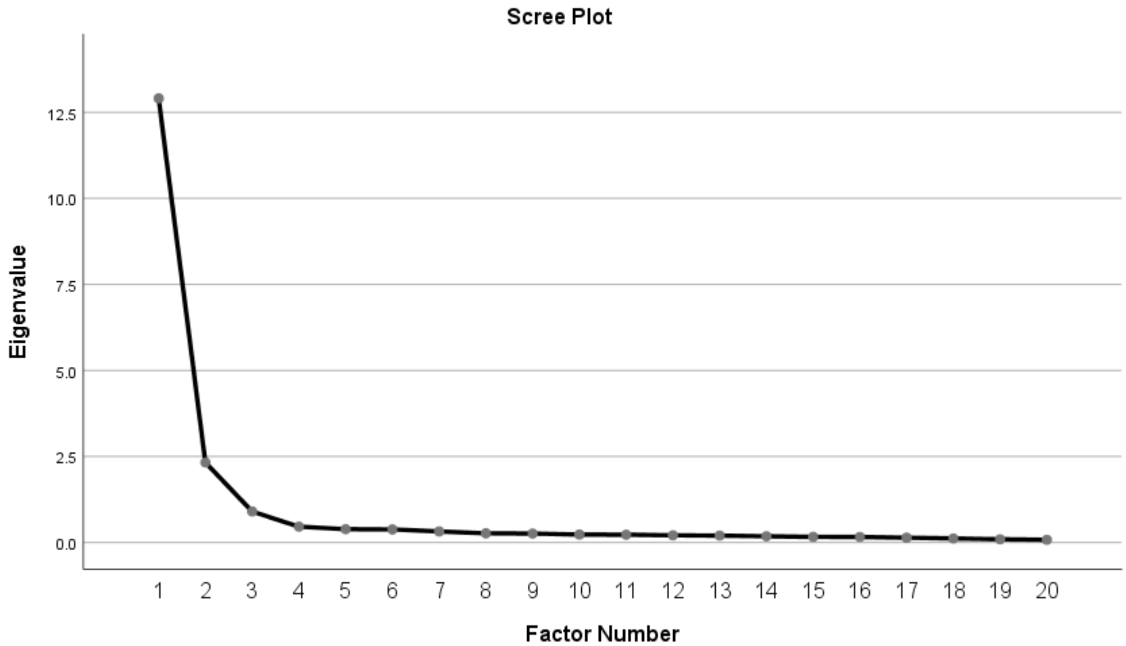
| | | |
|---|---|---|
| PA3_Ecig | .796 | .816 |
| PA4_Ecig | .762 | .743 |
| PA5_Ecig | .739 | .643 |
| PA6_Ecig | .800 | .734 |
| PA7_Ecig | .786 | .746 |
| PA8_Ecig | .737 | .705 |
| PA9_Ecig | .824 | .760 |
| PA1_Ecig | .814 | .771 |

Extraction Method: Principal Axis Factoring.

## Total Variance Explained

| | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| Factor | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 12.906 | 64.529 | 64.529 | 12.644 | 63.222 | 63.222 | 7.565 | 37.826 | 37.826 |
| 2 | 2.325 | 11.627 | 76.155 | 2.072 | 10.358 | 73.580 | 7.151 | 35.754 | 73.580 |
| 3 | .901 | 4.507 | 80.662 | | | | | | |
| 4 | .460 | 2.302 | 82.964 | | | | | | |
| 5 | .386 | 1.930 | 84.894 | | | | | | |
| 6 | .380 | 1.898 | 86.792 | | | | | | |
| 7 | .320 | 1.601 | 88.393 | | | | | | |
| 8 | .266 | 1.331 | 89.724 | | | | | | |
| 9 | .259 | 1.293 | 91.017 | | | | | | |
| 10 | .230 | 1.151 | 92.168 | | | | | | |
| 11 | .226 | 1.129 | 93.297 | | | | | | |
| 12 | .208 | 1.041 | 94.338 | | | | | | |
| 13 | .199 | .996 | 95.335 | | | | | | |
| 14 | .180 | .902 | 96.237 | | | | | | |
| 15 | .164 | .821 | 97.058 | | | | | | |
| 16 | .160 | .802 | 97.860 | | | | | | |
| 17 | .139 | .693 | 98.553 | | | | | | |
| 18 | .118 | .588 | 99.142 | | | | | | |
| 19 | .093 | .463 | 99.605 | | | | | | |
| 20 | .079 | .395 | 100.000 | | | | | | |

Extraction Method: Principal Axis Factoring.




**Factor Matrix**[a]

| | Factor | |
|---|---|---|
| | 1 | 2 |
| NA1_Ecig | -.786 | .301 |
| NA2_Ecig | -.789 | .360 |
| NA3_Ecig | -.779 | .346 |
| NA4_Ecig | -.798 | .294 |
| NA5_Ecig | -.813 | .193 |
| NA6_Ecig | -.822 | .103 |
| NA7_Ecig | -.758 | .218 |
| NA8_Ecig | -.727 | .467 |
| NA9_Ecig | -.867 | .379 |
| NA1_Ecig | -.719 | .452 |
| PA1_Ecig | .802 | .354 |
| PA2_Ecig | .827 | .263 |
| PA3_Ecig | .793 | .432 |
| PA4_Ecig | .776 | .375 |
| PA5_Ecig | .724 | .344 |
| PA6_Ecig | .845 | .140 |
| PA7_Ecig | .820 | .272 |

| | | |
|---|---|---|
| PA8_Ecig | .781 | .308 |
| PA9_Ecig | .839 | .238 |
| PA1_Ecig | .820 | .314 |

Extraction Method: Principal Axis Factoring.

a. 2 factors extracted. 4 iterations required.

**Rotated Factor Matrix[a]**

| | Factor | |
|---|---|---|
| | 1 | 2 |
| NA1_Ecig | -.358 | .762 |
| NA2_Ecig | -.319 | .806 |
| NA3_Ecig | -.322 | .789 |
| NA4_Ecig | -.371 | .765 |
| NA5_Ecig | -.452 | .703 |
| NA6_Ecig | -.521 | .644 |
| NA7_Ecig | -.395 | .682 |
| NA8_Ecig | -.200 | .840 |
| NA9_Ecig | -.362 | .874 |
| NA1_Ecig | -.205 | .824 |
| PA1_Ecig | .823 | -.301 |
| PA2_Ecig | .778 | -.384 |
| PA3_Ecig | .871 | -.239 |
| PA4_Ecig | .820 | -.267 |
| PA5_Ecig | .761 | -.253 |
| PA6_Ecig | .707 | -.485 |
| PA7_Ecig | .779 | -.372 |
| PA8_Ecig | .776 | -.320 |
| PA9_Ecig | .770 | -.410 |
| PA1_Ecig | .809 | -.342 |

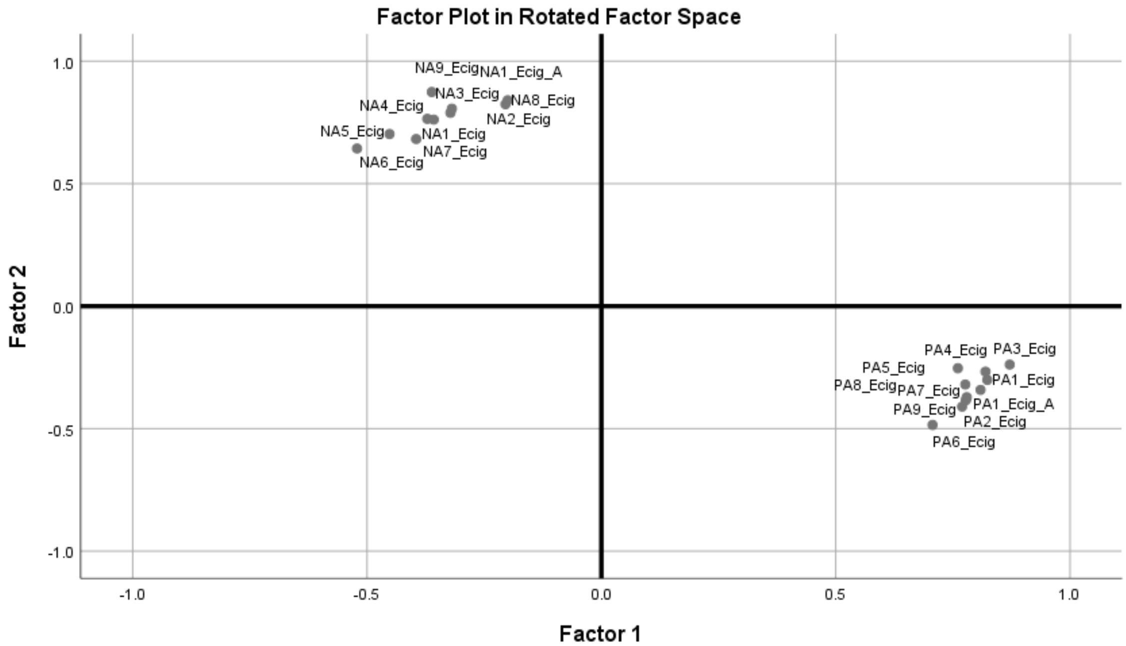
Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 3 iterations.

**Factor Transformation Matrix**

| Factor | 1 | 2 |
|---|---|---|
| 1 | .721 | -.693 |
| 2 | .693 | .721 |

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.




# Factor Analysis

### Descriptive Statistics

| | Mean | Std. Deviation | Analysis N |
|---|---|---|---|
| NA1_Music | 2.12 | 1.759 | 177 |
| NA2_Music | 1.81 | 1.440 | 177 |
| NA3_Music | 1.93 | 1.454 | 177 |
| NA4_Music | 1.95 | 1.516 | 177 |
| NA5_Music | 2.14 | 1.731 | 177 |
| NA6_Music | 2.32 | 1.874 | 177 |
| NA7_Music | 2.14 | 1.644 | 177 |
| NA8_Music | 1.97 | 1.559 | 177 |
| NA9_Music | 1.96 | 1.550 | 177 |
| NA1_Music | 1.80 | 1.403 | 177 |

| | | | |
|---|---|---|---|
| PA1_Music | 5.98 | 1.460 | 177 |
| PA2_Music | 5.90 | 1.534 | 177 |
| PA3_Music | 5.83 | 1.561 | 177 |
| PA4_Music | 5.74 | 1.658 | 177 |
| PA5_Music | 5.89 | 1.488 | 177 |
| PA6_Music | 6.01 | 1.348 | 177 |
| PA7_Music | 5.93 | 1.487 | 177 |
| PA8_Music | 5.85 | 1.432 | 177 |
| PA9_Music | 5.99 | 1.426 | 177 |
| PA1_Music | 5.87 | 1.578 | 177 |

**Communalities**

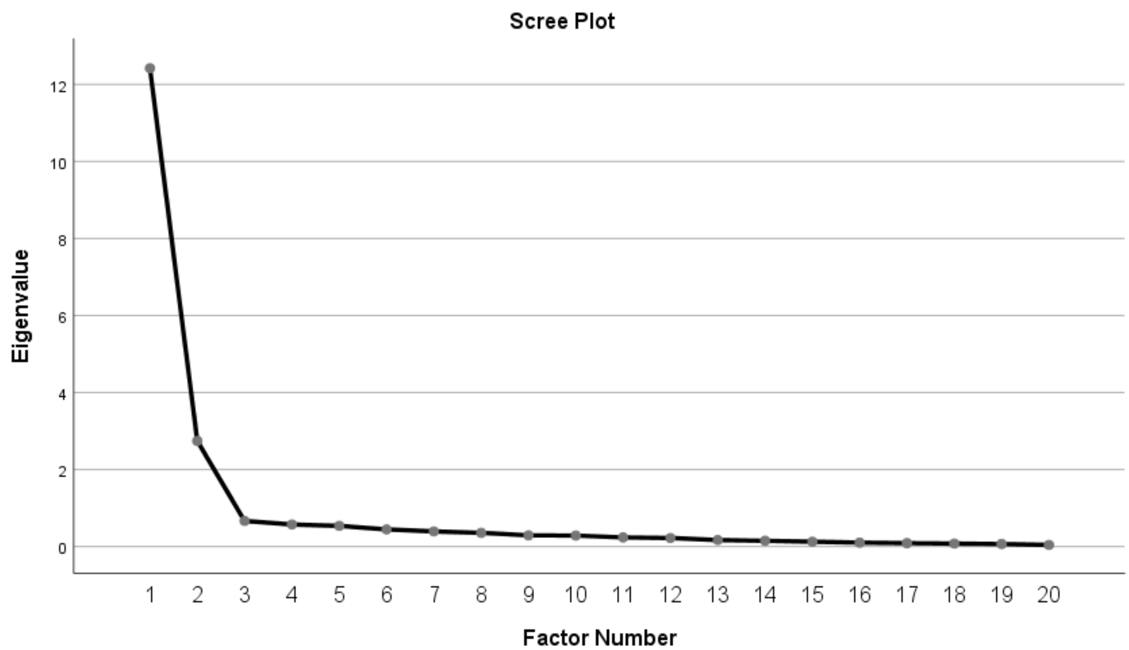
| | Initial | Extraction |
|---|---|---|
| NA1_Music | .873 | .809 |
| NA2_Music | .910 | .845 |
| NA3_Music | .881 | .853 |
| NA4_Music | .928 | .869 |
| NA5_Music | .891 | .800 |
| NA6_Music | .801 | .718 |
| NA7_Music | .861 | .802 |
| NA8_Music | .866 | .813 |
| NA9_Music | .824 | .777 |
| NA1_Music | .840 | .820 |
| PA1_Music | .661 | .608 |
| PA2_Music | .742 | .639 |
| PA3_Music | .748 | .658 |
| PA4_Music | .695 | .624 |
| PA5_Music | .810 | .797 |
| PA6_Music | .806 | .648 |
| PA7_Music | .691 | .645 |
| PA8_Music | .734 | .621 |
| PA9_Music | .809 | .757 |
| PA1_Music | .652 | .543 |

Extraction Method: Principal Axis Factoring.

**Total Variance Explained**

| Factor | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 12.421 | 62.104 | 62.104 | 12.167 | 60.835 | 60.835 | 7.872 | 39.362 | 39.362 |
| 2 | 2.743 | 13.717 | 75.821 | 2.478 | 12.389 | 73.223 | 6.772 | 33.861 | 73.223 |
| 3 | .665 | 3.327 | 79.148 | | | | | | |
| 4 | .574 | 2.871 | 82.020 | | | | | | |
| 5 | .538 | 2.690 | 84.709 | | | | | | |
| 6 | .446 | 2.231 | 86.941 | | | | | | |
| 7 | .393 | 1.965 | 88.906 | | | | | | |
| 8 | .357 | 1.783 | 90.688 | | | | | | |
| 9 | .291 | 1.456 | 92.144 | | | | | | |
| 10 | .286 | 1.429 | 93.573 | | | | | | |
| 11 | .238 | 1.188 | 94.761 | | | | | | |
| 12 | .223 | 1.113 | 95.874 | | | | | | |
| 13 | .169 | .847 | 96.721 | | | | | | |
| 14 | .150 | .751 | 97.472 | | | | | | |
| 15 | .126 | .630 | 98.102 | | | | | | |
| 16 | .103 | .515 | 98.618 | | | | | | |
| 17 | .089 | .443 | 99.061 | | | | | | |
| 18 | .078 | .391 | 99.452 | | | | | | |
| 19 | .068 | .338 | 99.790 | | | | | | |
| 20 | .042 | .210 | 100.000 | | | | | | |

Extraction Method: Principal Axis Factoring.




**Factor Matrix[a]**

| | Factor | |
|---|---|---|
| | 1 | 2 |
| NA1_Music | .850 | .295 |
| NA2_Music | .823 | .409 |
| NA3_Music | .870 | .309 |
| NA4_Music | .881 | .305 |
| NA5_Music | .851 | .276 |
| NA6_Music | .815 | .230 |
| NA7_Music | .835 | .322 |
| NA8_Music | .866 | .252 |
| NA9_Music | .812 | .342 |
| NA1_Music | .789 | .443 |
| PA1_Music | -.704 | .336 |
| PA2_Music | -.719 | .348 |
| PA3_Music | -.726 | .362 |
| PA4_Music | -.681 | .401 |
| PA5_Music | -.743 | .495 |
| PA6_Music | -.736 | .327 |
| PA7_Music | -.682 | .424 |
| PA8_Music | -.731 | .296 |
| PA9_Music | -.749 | .443 |

| | | |
|---|---|---|
| PA1_Music | -.679 | .287 |

Extraction Method: Principal Axis Factoring.

a. 2 factors extracted. 4 iterations required.

### Rotated Factor Matrix[a]

| | Factor | |
|---|---|---|
| | 1 | 2 |
| NA1_Music | .830 | -.346 |
| NA2_Music | .887 | -.243 |
| NA3_Music | .855 | -.349 |
| NA4_Music | .860 | -.359 |
| NA5_Music | .819 | -.360 |
| NA6_Music | .762 | -.371 |
| NA7_Music | .838 | -.316 |
| NA8_Music | .814 | -.388 |
| NA9_Music | .834 | -.286 |
| NA1_Music | .884 | -.195 |
| PA1_Music | -.301 | .719 |
| PA2_Music | -.305 | .739 |
| PA3_Music | -.300 | .754 |
| PA4_Music | -.241 | .752 |
| PA5_Music | -.225 | .864 |
| PA6_Music | -.331 | .734 |
| PA7_Music | -.226 | .770 |
| PA8_Music | -.348 | .707 |
| PA9_Music | -.263 | .829 |
| PA1_Music | -.315 | .666 |

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.[a]

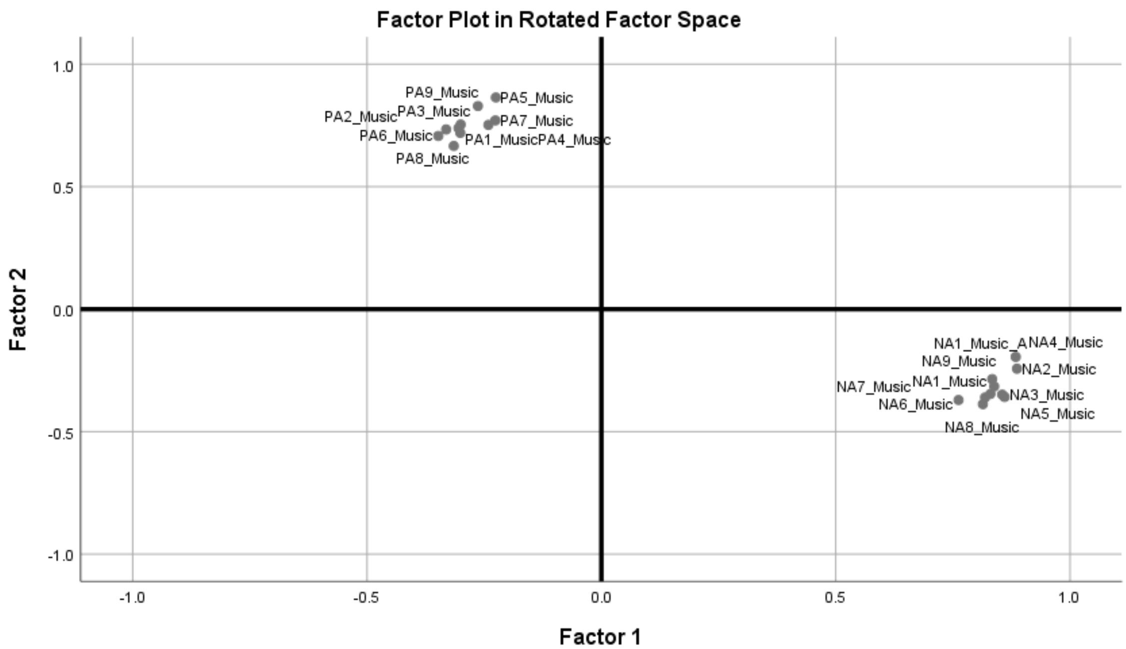
a. Rotation converged in 3 iterations.

### Factor Transformation Matrix

| Factor | 1 | 2 |
|---|---|---|
| 1 | .746 | -.666 |

| | | |
|---|---|---|
| 2 | .666 | .746 |

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.




# Factor Analysis

**Descriptive Statistics**

| | Mean | Std. Deviation | Analysis N |
|---|---|---|---|
| NA1_Drunk | 5.38 | 1.735 | 177 |
| NA2_Drunk | 5.23 | 1.751 | 177 |
| NA3_Drunk | 5.19 | 1.792 | 177 |
| NA4_Drunk | 5.19 | 1.821 | 177 |
| NA5_Drunk | 5.57 | 1.647 | 177 |
| NA6_Drunk | 5.61 | 1.610 | 177 |
| NA7_Drunk | 5.37 | 1.737 | 177 |
| NA8_Drunk | 5.23 | 1.680 | 177 |
| NA9_Drunk | 5.44 | 1.602 | 177 |
| NA1_Drunk | 4.90 | 1.885 | 177 |
| PA1_Drunk | 2.47 | 1.736 | 177 |
| PA2_Drunk | 2.54 | 1.803 | 177 |
| PA3_Drunk | 2.29 | 1.653 | 177 |

| | | | |
|---|---|---|---|
| PA4_Drunk | 2.42 | 1.767 | 177 |
| PA5_Drunk | 2.47 | 1.732 | 177 |
| PA6_Drunk | 2.82 | 1.783 | 177 |
| PA7_Drunk | 2.60 | 1.775 | 177 |
| PA8_Drunk | 2.37 | 1.711 | 177 |
| PA9_Drunk | 2.56 | 1.780 | 177 |
| PA1_Drunk | 2.57 | 1.767 | 177 |

**Communalities**

| | Initial | Extraction |
|---|---|---|
| NA1_Drunk | .758 | .735 |
| NA2_Drunk | .805 | .823 |
| NA3_Drunk | .770 | .684 |
| NA4_Drunk | .640 | .604 |
| NA5_Drunk | .737 | .637 |
| NA6_Drunk | .756 | .669 |
| NA7_Drunk | .746 | .645 |
| NA8_Drunk | .746 | .667 |
| NA9_Drunk | .789 | .727 |
| NA1_Drunk | .730 | .693 |
| PA1_Drunk | .853 | .835 |
| PA2_Drunk | .725 | .692 |
| PA3_Drunk | .829 | .806 |
| PA4_Drunk | .851 | .813 |
| PA5_Drunk | .777 | .698 |
| PA6_Drunk | .776 | .731 |
| PA7_Drunk | .830 | .823 |
| PA8_Drunk | .837 | .825 |
| PA9_Drunk | .848 | .834 |
| PA1_Drunk | .793 | .775 |

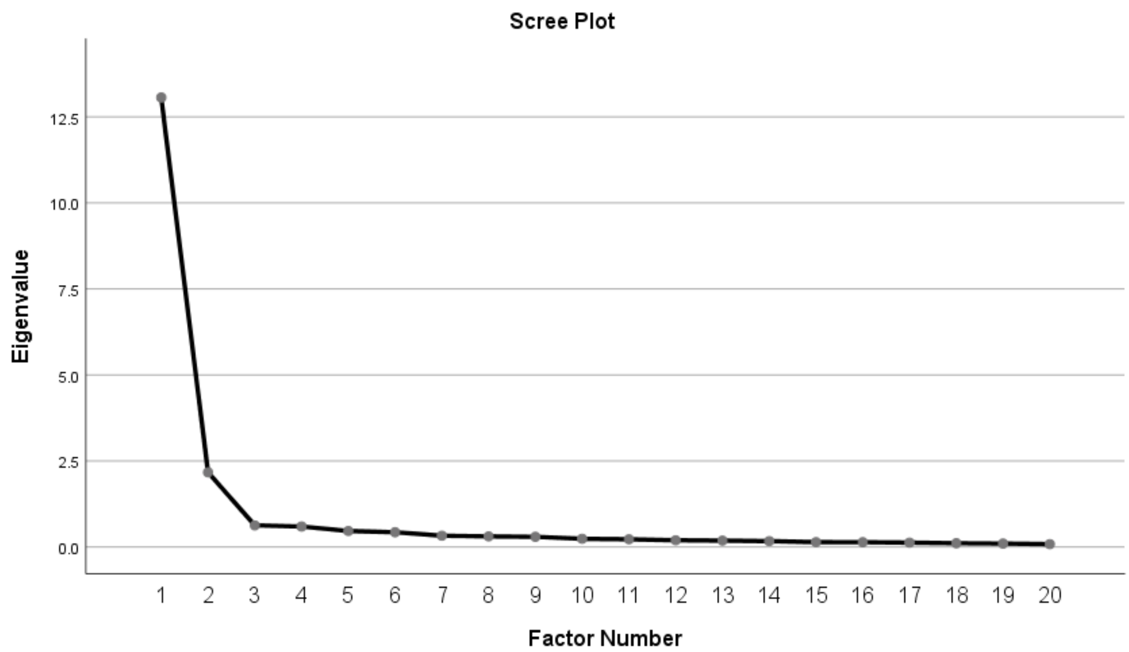
Extraction Method: Principal Axis Factoring.

**Total Variance Explained**

| Factor | Initial Eigenvalues | Extraction Sums of Squared Loadings | Rotation Sums of Squared Loadings |
|---|---|---|---|

| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 13.061 | 65.306 | 65.306 | 12.804 | 64.019 | 64.019 | 7.691 | 38.453 | 38.453 |
| 2 | 2.170 | 10.852 | 76.158 | 1.912 | 9.558 | 73.577 | 7.025 | 35.124 | 73.577 |
| 3 | .629 | 3.145 | 79.302 | | | | | | |
| 4 | .595 | 2.974 | 82.277 | | | | | | |
| 5 | .464 | 2.320 | 84.597 | | | | | | |
| 6 | .429 | 2.147 | 86.744 | | | | | | |
| 7 | .327 | 1.634 | 88.377 | | | | | | |
| 8 | .309 | 1.547 | 89.924 | | | | | | |
| 9 | .296 | 1.480 | 91.404 | | | | | | |
| 10 | .239 | 1.193 | 92.598 | | | | | | |
| 11 | .224 | 1.118 | 93.716 | | | | | | |
| 12 | .197 | .984 | 94.700 | | | | | | |
| 13 | .186 | .931 | 95.631 | | | | | | |
| 14 | .171 | .853 | 96.484 | | | | | | |
| 15 | .142 | .712 | 97.195 | | | | | | |
| 16 | .139 | .695 | 97.890 | | | | | | |
| 17 | .128 | .640 | 98.530 | | | | | | |
| 18 | .110 | .551 | 99.081 | | | | | | |
| 19 | .100 | .499 | 99.581 | | | | | | |
| 20 | .084 | .419 | 100.000 | | | | | | |

Extraction Method: Principal Axis Factoring.




**Factor Matrix[a]**

| | Factor | |
|---|---|---|
| | 1 | 2 |
| NA1_Drunk | -.807 | .289 |
| NA2_Drunk | -.798 | .432 |
| NA3_Drunk | -.760 | .327 |
| NA4_Drunk | -.698 | .341 |
| NA5_Drunk | -.776 | .185 |
| NA6_Drunk | -.775 | .262 |
| NA7_Drunk | -.749 | .289 |
| NA8_Drunk | -.749 | .326 |
| NA9_Drunk | -.785 | .331 |
| NA1_Drunk | -.742 | .378 |
| PA1_Drunk | .833 | .376 |
| PA2_Drunk | .771 | .311 |
| PA3_Drunk | .853 | .281 |
| PA4_Drunk | .853 | .290 |
| PA5_Drunk | .788 | .277 |
| PA6_Drunk | .839 | .166 |
| PA7_Drunk | .877 | .233 |
| PA8_Drunk | .834 | .360 |
| PA9_Drunk | .856 | .320 |

| | | |
|---|---|---|
| PA1_Drunk | .834 | .283 |

Extraction Method: Principal Axis Factoring.

a. 2 factors extracted. 4 iterations required.

### Rotated Factor Matrix[a]

| | Factor | |
|---|---|---|
| | 1 | 2 |
| NA1_Drunk | -.390 | .764 |
| NA2_Drunk | -.285 | .861 |
| NA3_Drunk | -.330 | .759 |
| NA4_Drunk | -.275 | .727 |
| NA5_Drunk | -.439 | .666 |
| NA6_Drunk | -.385 | .722 |
| NA7_Drunk | -.348 | .724 |
| NA8_Drunk | -.322 | .751 |
| NA9_Drunk | -.345 | .779 |
| NA1_Drunk | -.282 | .783 |
| PA1_Drunk | .864 | -.297 |
| PA2_Drunk | .775 | -.302 |
| PA3_Drunk | .814 | -.379 |
| PA4_Drunk | .821 | -.373 |
| PA5_Drunk | .764 | -.338 |
| PA6_Drunk | .725 | -.454 |
| PA7_Drunk | .798 | -.431 |
| PA8_Drunk | .854 | -.309 |
| PA9_Drunk | .842 | -.353 |
| PA1_Drunk | .801 | -.365 |

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.[a]

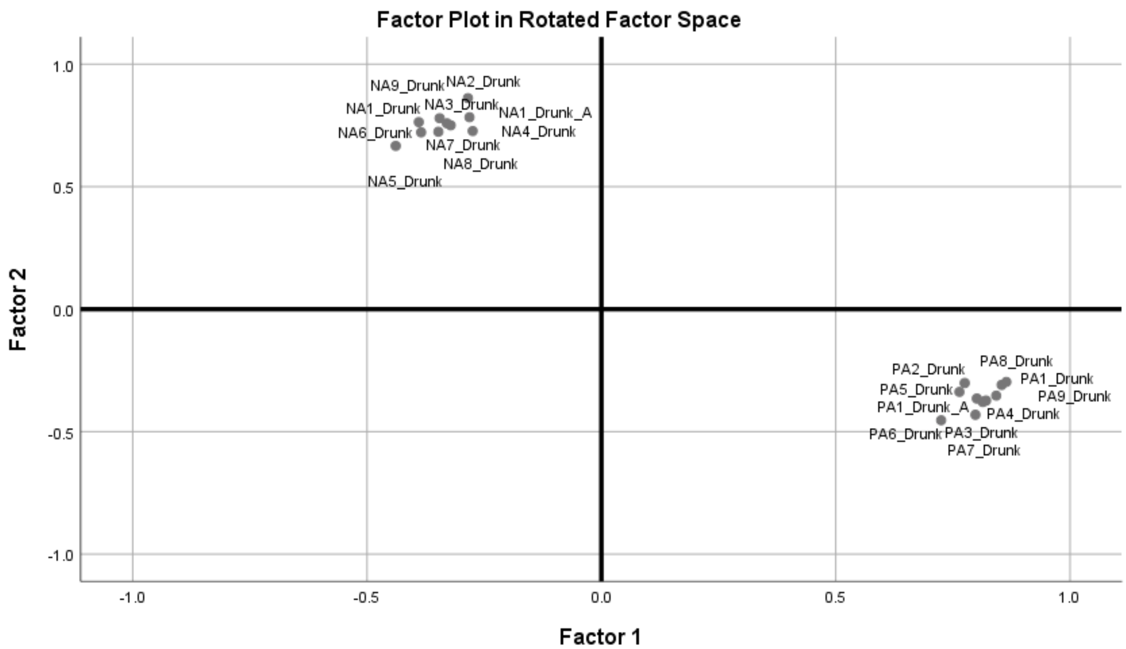
a. Rotation converged in 3 iterations.

### Factor Transformation Matrix

| Factor | 1 | 2 |
|---|---|---|
| 1 | .728 | -.685 |

| | | |
|---|---|---|
| 2 | .685 | .728 |

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.




### *O.1.2 Factor Analysis: 2 Factors with Quartimax Rotation*

## Factor Analysis

**Descriptive Statistics**

| | Mean | Std. Deviation | Analysis N |
|---|---|---|---|
| NA1_Calc | 1.93 | 1.631 | 177 |
| NA2_Calc | 1.72 | 1.457 | 177 |
| NA3_Calc | 1.90 | 1.609 | 177 |
| NA4_Calc | 1.76 | 1.374 | 177 |
| NA5_Calc | 2.00 | 1.672 | 177 |
| NA6_Calc | 2.06 | 1.719 | 177 |
| NA7_Calc | 2.05 | 1.680 | 177 |
| NA8_Calc | 1.82 | 1.595 | 177 |
| NA9_Calc | 1.97 | 1.728 | 177 |
| NA1_Calc | 1.85 | 1.583 | 177 |

| | | | |
|---|---|---|---|
| PA1_Calc | 6.18 | 1.378 | 177 |
| PA2_Calc | 6.15 | 1.508 | 177 |
| PA3_Calc | 6.11 | 1.430 | 177 |
| PA4_Calc | 5.98 | 1.556 | 177 |
| PA5_Calc | 5.82 | 1.728 | 177 |
| PA6_Calc | 6.22 | 1.169 | 177 |
| PA7_Calc | 6.14 | 1.467 | 177 |
| PA8_Calc | 5.81 | 1.436 | 177 |
| PA9_Calc | 6.15 | 1.431 | 177 |
| PA1_Calc | 6.07 | 1.549 | 177 |

**Communalities**

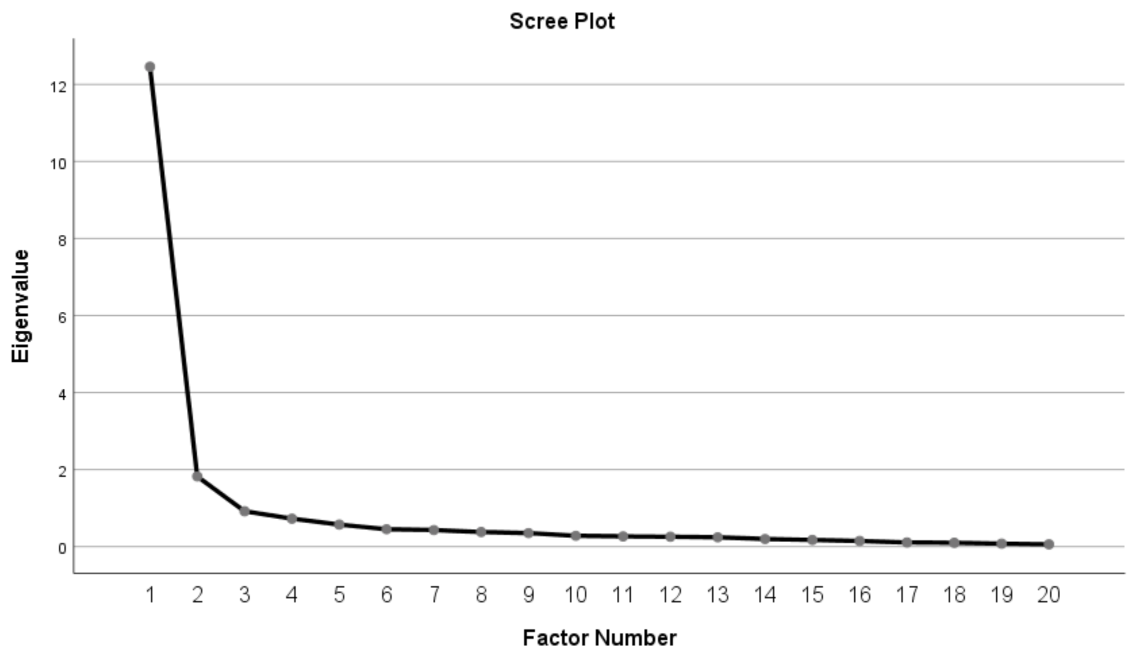
| | Initial | Extraction |
|---|---|---|
| NA1_Calc | .913 | .865 |
| NA2_Calc | .844 | .828 |
| NA3_Calc | .870 | .849 |
| NA4_Calc | .894 | .886 |
| NA5_Calc | .884 | .835 |
| NA6_Calc | .751 | .689 |
| NA7_Calc | .702 | .641 |
| NA8_Calc | .894 | .890 |
| NA9_Calc | .785 | .773 |
| NA1_Calc | .812 | .773 |
| PA1_Calc | .730 | .699 |
| PA2_Calc | .601 | .593 |
| PA3_Calc | .675 | .682 |
| PA4_Calc | .640 | .534 |
| PA5_Calc | .545 | .413 |
| PA6_Calc | .703 | .627 |
| PA7_Calc | .615 | .532 |
| PA8_Calc | .621 | .488 |
| PA9_Calc | .598 | .569 |
| PA1_Calc | .531 | .492 |

Extraction Method: Principal Axis Factoring.

**Total Variance Explained**

| Factor | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 12.459 | 62.295 | 62.295 | 12.177 | 60.887 | 60.887 | 12.144 | 60.722 | 60.722 |
| 2 | 1.822 | 9.110 | 71.405 | 1.481 | 7.404 | 68.291 | 1.514 | 7.569 | 68.291 |
| 3 | .916 | 4.582 | 75.987 | | | | | | |
| 4 | .725 | 3.625 | 79.612 | | | | | | |
| 5 | .572 | 2.859 | 82.470 | | | | | | |
| 6 | .450 | 2.252 | 84.723 | | | | | | |
| 7 | .430 | 2.151 | 86.874 | | | | | | |
| 8 | .378 | 1.889 | 88.762 | | | | | | |
| 9 | .351 | 1.754 | 90.516 | | | | | | |
| 10 | .280 | 1.402 | 91.918 | | | | | | |
| 11 | .265 | 1.326 | 93.244 | | | | | | |
| 12 | .255 | 1.277 | 94.522 | | | | | | |
| 13 | .241 | 1.205 | 95.726 | | | | | | |
| 14 | .197 | .986 | 96.712 | | | | | | |
| 15 | .172 | .861 | 97.573 | | | | | | |
| 16 | .146 | .730 | 98.304 | | | | | | |
| 17 | .107 | .534 | 98.838 | | | | | | |
| 18 | .098 | .491 | 99.329 | | | | | | |
| 19 | .076 | .378 | 99.707 | | | | | | |
| 20 | .059 | .293 | 100.000 | | | | | | |

Extraction Method: Principal Axis Factoring.




**Factor Matrix[a]**

| | Factor | |
|---|---|---|
| | 1 | 2 |
| NA1_Calc | .905 | .215 |
| NA2_Calc | .880 | .234 |
| NA3_Calc | .884 | .260 |
| NA4_Calc | .913 | .226 |
| NA5_Calc | .893 | .193 |
| NA6_Calc | .804 | .205 |
| NA7_Calc | .779 | .186 |
| NA8_Calc | .889 | .316 |
| NA9_Calc | .835 | .276 |
| NA1_Calc | .846 | .240 |
| PA1_Calc | -.750 | .370 |
| PA2_Calc | -.685 | .352 |
| PA3_Calc | -.769 | .303 |
| PA4_Calc | -.663 | .307 |
| PA5_Calc | -.574 | .290 |
| PA6_Calc | -.764 | .207 |
| PA7_Calc | -.650 | .331 |
| PA8_Calc | -.654 | .245 |
| PA9_Calc | -.714 | .242 |

| | | |
|---|---|---|
| PA1_Calc | -.616 | .335 |

Extraction Method: Principal Axis Factoring.

a. 2 factors extracted. 4 iterations required.

### Rotated Factor Matrix[a]

| | Factor | |
|---|---|---|
| | 1 | 2 |
| NA1_Calc | .892 | .265 |
| NA2_Calc | .865 | .282 |
| NA3_Calc | .868 | .309 |
| NA4_Calc | .899 | .277 |
| NA5_Calc | .881 | .243 |
| NA6_Calc | .792 | .250 |
| NA7_Calc | .767 | .229 |
| NA8_Calc | .870 | .364 |
| NA9_Calc | .818 | .322 |
| NA1_Calc | .831 | .287 |
| PA1_Calc | -.769 | .328 |
| PA2_Calc | -.704 | .313 |
| PA3_Calc | -.784 | .259 |
| PA4_Calc | -.679 | .270 |
| PA5_Calc | -.589 | .257 |
| PA6_Calc | -.775 | .164 |
| PA7_Calc | -.667 | .294 |
| PA8_Calc | -.667 | .208 |
| PA9_Calc | -.727 | .202 |
| PA1_Calc | -.634 | .300 |

Extraction Method: Principal Axis Factoring.

Rotation Method: Quartimax with Kaiser Normalization.[a]

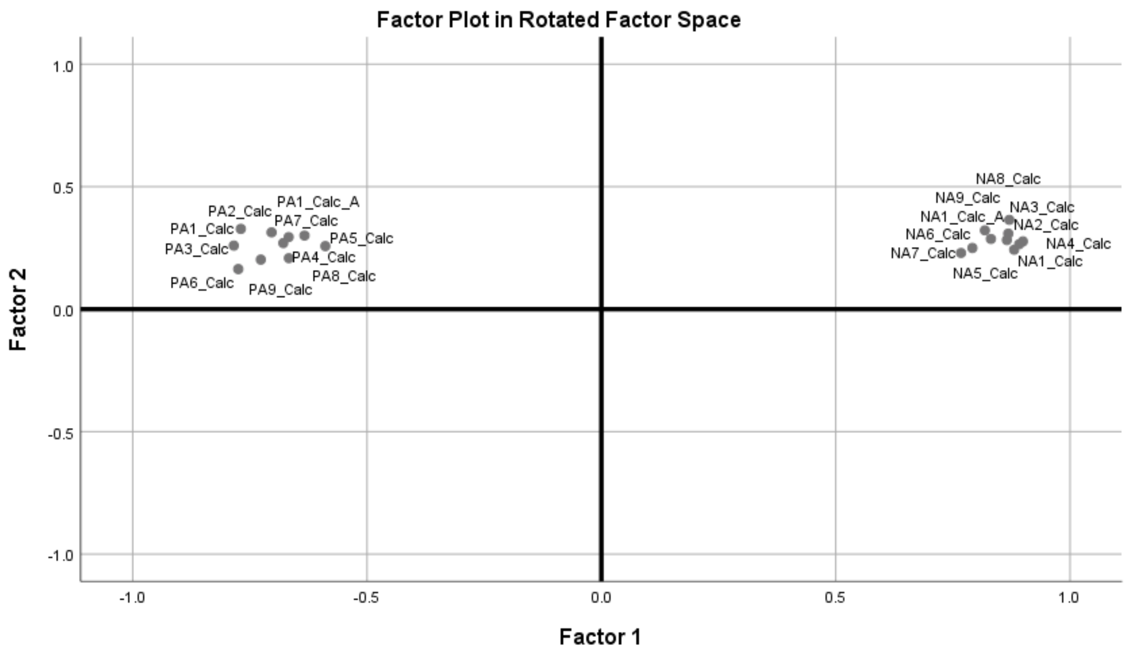
a. Rotation converged in 3 iterations.

### Factor Transformation Matrix

| Factor | 1 | 2 |
|---|---|---|
| 1 | .998 | .056 |

| | | |
|---|---|---|
| 2 | -.056 | .998 |

Extraction Method: Principal Axis Factoring.
Rotation Method: Quartimax with Kaiser Normalization.




# Factor Analysis

**Descriptive Statistics**

| | Mean | Std. Deviation | Analysis N |
|---|---|---|---|
| NA1_Ecig | 4.90 | 1.870 | 177 |
| NA2_Ecig | 4.37 | 2.019 | 177 |
| NA3_Ecig | 4.47 | 1.904 | 177 |
| NA4_Ecig | 4.52 | 1.963 | 177 |
| NA5_Ecig | 4.92 | 1.861 | 177 |
| NA6_Ecig | 5.03 | 1.724 | 177 |
| NA7_Ecig | 5.00 | 1.692 | 177 |
| NA8_Ecig | 4.16 | 1.924 | 177 |
| NA9_Ecig | 4.58 | 1.869 | 177 |
| NA1_Ecig | 3.92 | 1.965 | 177 |
| PA1_Ecig | 3.29 | 1.943 | 177 |
| PA2_Ecig | 3.06 | 1.858 | 177 |
| PA3_Ecig | 2.85 | 1.851 | 177 |

| | | | |
|---|---|---|---|
| PA4_Ecig | 2.95 | 1.905 | 177 |
| PA5_Ecig | 2.81 | 1.707 | 177 |
| PA6_Ecig | 3.55 | 1.951 | 177 |
| PA7_Ecig | 3.17 | 1.878 | 177 |
| PA8_Ecig | 2.98 | 1.771 | 177 |
| PA9_Ecig | 3.24 | 1.853 | 177 |
| PA1_Ecig | 3.37 | 1.979 | 177 |

**Communalities**

| | Initial | Extraction |
|---|---|---|
| NA1_Ecig | .769 | .708 |
| NA2_Ecig | .785 | .752 |
| NA3_Ecig | .801 | .727 |
| NA4_Ecig | .761 | .722 |
| NA5_Ecig | .764 | .698 |
| NA6_Ecig | .800 | .686 |
| NA7_Ecig | .759 | .621 |
| NA8_Ecig | .786 | .746 |
| NA9_Ecig | .884 | .895 |
| NA1_Ecig | .785 | .721 |
| PA1_Ecig | .772 | .768 |
| PA2_Ecig | .753 | .752 |
| PA3_Ecig | .796 | .816 |
| PA4_Ecig | .762 | .743 |
| PA5_Ecig | .739 | .643 |
| PA6_Ecig | .800 | .734 |
| PA7_Ecig | .786 | .746 |
| PA8_Ecig | .737 | .705 |
| PA9_Ecig | .824 | .760 |
| PA1_Ecig | .814 | .771 |

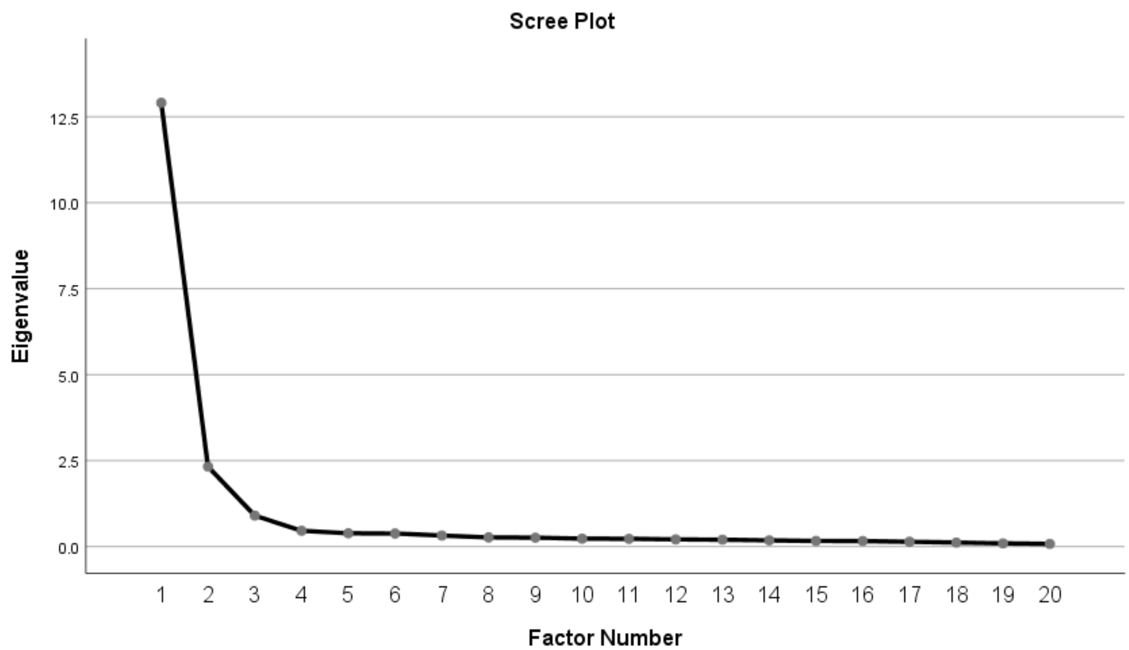
Extraction Method: Principal Axis Factoring.

**Total Variance Explained**

| Factor | Initial Eigenvalues | Extraction Sums of Squared Loadings | Rotation Sums of Squared Loadings |
|---|---|---|---|

| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12.906 | 64.529 | 64.529 | 12.644 | 63.222 | 63.222 | 12.571 | 62.857 | 62.857 |
| 2 | 2.325 | 11.627 | 76.155 | 2.072 | 10.358 | 73.580 | 2.145 | 10.723 | 73.580 |
| 3 | .901 | 4.507 | 80.662 | | | | | | |
| 4 | .460 | 2.302 | 82.964 | | | | | | |
| 5 | .386 | 1.930 | 84.894 | | | | | | |
| 6 | .380 | 1.898 | 86.792 | | | | | | |
| 7 | .320 | 1.601 | 88.393 | | | | | | |
| 8 | .266 | 1.331 | 89.724 | | | | | | |
| 9 | .259 | 1.293 | 91.017 | | | | | | |
| 10 | .230 | 1.151 | 92.168 | | | | | | |
| 11 | .226 | 1.129 | 93.297 | | | | | | |
| 12 | .208 | 1.041 | 94.338 | | | | | | |
| 13 | .199 | .996 | 95.335 | | | | | | |
| 14 | .180 | .902 | 96.237 | | | | | | |
| 15 | .164 | .821 | 97.058 | | | | | | |
| 16 | .160 | .802 | 97.860 | | | | | | |
| 17 | .139 | .693 | 98.553 | | | | | | |
| 18 | .118 | .588 | 99.142 | | | | | | |
| 19 | .093 | .463 | 99.605 | | | | | | |
| 20 | .079 | .395 | 100.000 | | | | | | |

Extraction Method: Principal Axis Factoring.




**Factor Matrix[a]**

| | Factor | |
|---|---|---|
| | 1 | 2 |
| NA1_Ecig | -.786 | .301 |
| NA2_Ecig | -.789 | .360 |
| NA3_Ecig | -.779 | .346 |
| NA4_Ecig | -.798 | .294 |
| NA5_Ecig | -.813 | .193 |
| NA6_Ecig | -.822 | .103 |
| NA7_Ecig | -.758 | .218 |
| NA8_Ecig | -.727 | .467 |
| NA9_Ecig | -.867 | .379 |
| NA1_Ecig | -.719 | .452 |
| PA1_Ecig | .802 | .354 |
| PA2_Ecig | .827 | .263 |
| PA3_Ecig | .793 | .432 |
| PA4_Ecig | .776 | .375 |
| PA5_Ecig | .724 | .344 |
| PA6_Ecig | .845 | .140 |
| PA7_Ecig | .820 | .272 |
| PA8_Ecig | .781 | .308 |
| PA9_Ecig | .839 | .238 |

| | | |
|---|---|---|
| PA1_Ecig | .820 | .314 |

Extraction Method: Principal Axis Factoring.

a. 2 factors extracted. 4 iterations required.

### Rotated Factor Matrix[a]

| | Factor | |
|---|---|---|
| | 1 | 2 |
| NA1_Ecig | -.758 | .365 |
| NA2_Ecig | -.756 | .424 |
| NA3_Ecig | -.748 | .409 |
| NA4_Ecig | -.770 | .359 |
| NA5_Ecig | -.794 | .260 |
| NA6_Ecig | -.811 | .170 |
| NA7_Ecig | -.737 | .280 |
| NA8_Ecig | -.685 | .526 |
| NA9_Ecig | -.832 | .450 |
| NA1_Ecig | -.679 | .510 |
| PA1_Ecig | .829 | .286 |
| PA2_Ecig | .845 | .193 |
| PA3_Ecig | .827 | .364 |
| PA4_Ecig | .805 | .310 |
| PA5_Ecig | .750 | .283 |
| PA6_Ecig | .854 | .070 |
| PA7_Ecig | .839 | .203 |
| PA8_Ecig | .804 | .242 |
| PA9_Ecig | .856 | .167 |
| PA1_Ecig | .843 | .245 |

Extraction Method: Principal Axis Factoring.

Rotation Method: Quartimax with Kaiser Normalization.[a]

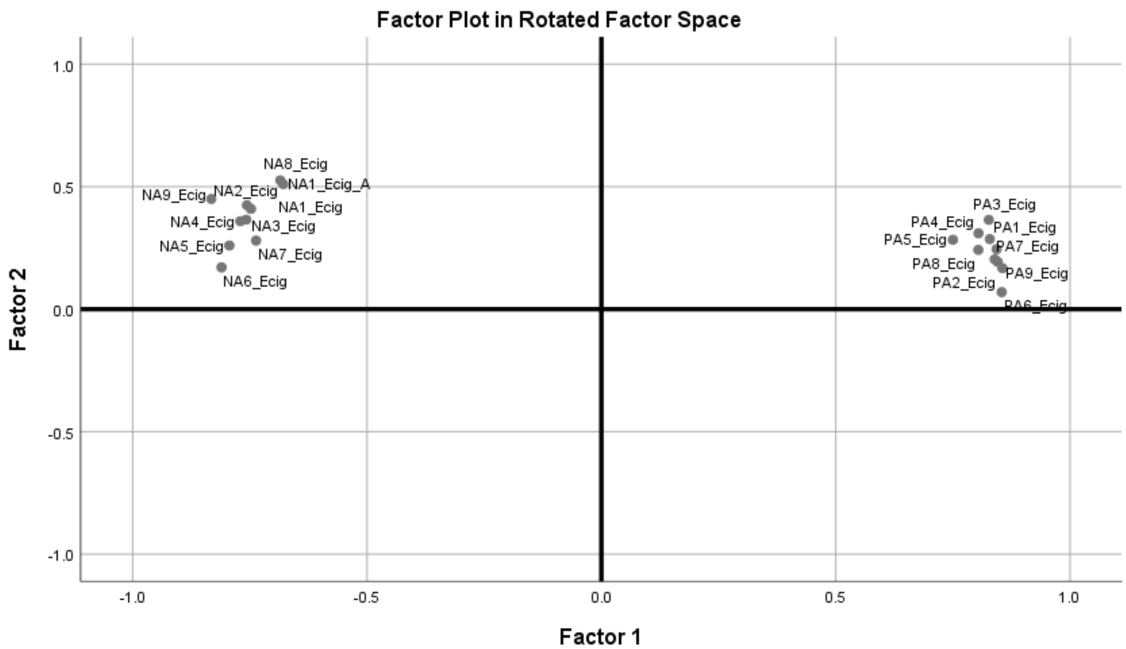
a. Rotation converged in 3 iterations.

### Factor Transformation Matrix

| Factor | 1 | 2 |
|---|---|---|
| 1 | .997 | -.083 |

| | | |
|---|---|---|
| 2 | .083 | .997 |

Extraction Method: Principal Axis Factoring.
Rotation Method: Quartimax with Kaiser Normalization.




# Factor Analysis

**Descriptive Statistics**

| | Mean | Std. Deviation | Analysis N |
|---|---|---|---|
| NA1_Music | 2.12 | 1.759 | 177 |
| NA2_Music | 1.81 | 1.440 | 177 |
| NA3_Music | 1.93 | 1.454 | 177 |
| NA4_Music | 1.95 | 1.516 | 177 |
| NA5_Music | 2.14 | 1.731 | 177 |
| NA6_Music | 2.32 | 1.874 | 177 |
| NA7_Music | 2.14 | 1.644 | 177 |
| NA8_Music | 1.97 | 1.559 | 177 |
| NA9_Music | 1.96 | 1.550 | 177 |
| NA1_Music | 1.80 | 1.403 | 177 |
| PA1_Music | 5.98 | 1.460 | 177 |

| | | | |
|---|---|---|---|
| PA2_Music | 5.90 | 1.534 | 177 |
| PA3_Music | 5.83 | 1.561 | 177 |
| PA4_Music | 5.74 | 1.658 | 177 |
| PA5_Music | 5.89 | 1.488 | 177 |
| PA6_Music | 6.01 | 1.348 | 177 |
| PA7_Music | 5.93 | 1.487 | 177 |
| PA8_Music | 5.85 | 1.432 | 177 |
| PA9_Music | 5.99 | 1.426 | 177 |
| PA1_Music | 5.87 | 1.578 | 177 |

**Communalities**

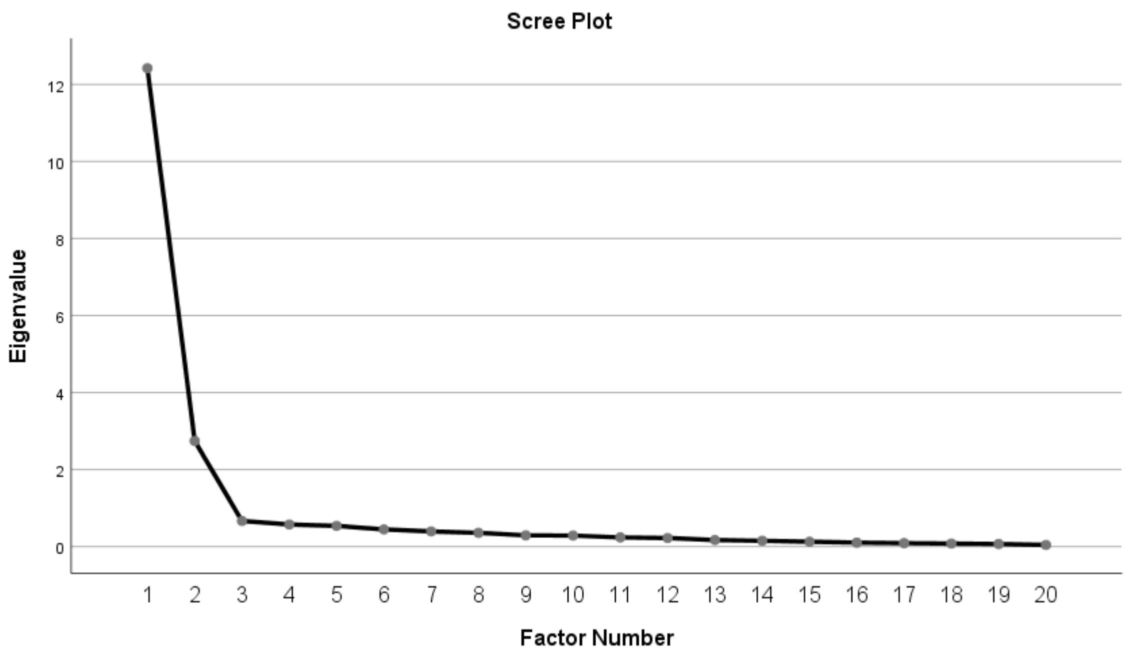
| | Initial | Extraction |
|---|---|---|
| NA1_Music | .873 | .809 |
| NA2_Music | .910 | .845 |
| NA3_Music | .881 | .853 |
| NA4_Music | .928 | .869 |
| NA5_Music | .891 | .800 |
| NA6_Music | .801 | .718 |
| NA7_Music | .861 | .802 |
| NA8_Music | .866 | .813 |
| NA9_Music | .824 | .777 |
| NA1_Music | .840 | .820 |
| PA1_Music | .661 | .608 |
| PA2_Music | .742 | .639 |
| PA3_Music | .748 | .658 |
| PA4_Music | .695 | .624 |
| PA5_Music | .810 | .797 |
| PA6_Music | .806 | .648 |
| PA7_Music | .691 | .645 |
| PA8_Music | .734 | .621 |
| PA9_Music | .809 | .757 |
| PA1_Music | .652 | .543 |

Extraction Method: Principal Axis Factoring.

**Total Variance Explained**

| Factor | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 12.421 | 62.104 | 62.104 | 12.167 | 60.835 | 60.835 | 7.821 | 39.106 | 39.106 |
| 2 | 2.743 | 13.717 | 75.821 | 2.478 | 12.389 | 73.223 | 6.823 | 34.117 | 73.223 |
| 3 | .665 | 3.327 | 79.148 | | | | | | |
| 4 | .574 | 2.871 | 82.020 | | | | | | |
| 5 | .538 | 2.690 | 84.709 | | | | | | |
| 6 | .446 | 2.231 | 86.941 | | | | | | |
| 7 | .393 | 1.965 | 88.906 | | | | | | |
| 8 | .357 | 1.783 | 90.688 | | | | | | |
| 9 | .291 | 1.456 | 92.144 | | | | | | |
| 10 | .286 | 1.429 | 93.573 | | | | | | |
| 11 | .238 | 1.188 | 94.761 | | | | | | |
| 12 | .223 | 1.113 | 95.874 | | | | | | |
| 13 | .169 | .847 | 96.721 | | | | | | |
| 14 | .150 | .751 | 97.472 | | | | | | |
| 15 | .126 | .630 | 98.102 | | | | | | |
| 16 | .103 | .515 | 98.618 | | | | | | |
| 17 | .089 | .443 | 99.061 | | | | | | |
| 18 | .078 | .391 | 99.452 | | | | | | |
| 19 | .068 | .338 | 99.790 | | | | | | |
| 20 | .042 | .210 | 100.000 | | | | | | |

Extraction Method: Principal Axis Factoring.




**Factor Matrix**[a]

| | Factor 1 | Factor 2 |
|---|---|---|
| NA1_Music | .850 | .295 |
| NA2_Music | .823 | .409 |
| NA3_Music | .870 | .309 |
| NA4_Music | .881 | .305 |
| NA5_Music | .851 | .276 |
| NA6_Music | .815 | .230 |
| NA7_Music | .835 | .322 |
| NA8_Music | .866 | .252 |
| NA9_Music | .812 | .342 |
| NA1_Music | .789 | .443 |
| PA1_Music | -.704 | .336 |
| PA2_Music | -.719 | .348 |
| PA3_Music | -.726 | .362 |
| PA4_Music | -.681 | .401 |
| PA5_Music | -.743 | .495 |
| PA6_Music | -.736 | .327 |
| PA7_Music | -.682 | .424 |
| PA8_Music | -.731 | .296 |
| PA9_Music | -.749 | .443 |

| | | |
|---|---|---|
| PA1_Music | -.679 | .287 |

Extraction Method: Principal Axis Factoring.

a. 2 factors extracted. 4 iterations required.

**Rotated Factor Matrix[a]**

| | Factor | |
|---|---|---|
| | 1 | 2 |
| NA1_Music | .828 | -.350 |
| NA2_Music | .885 | -.248 |
| NA3_Music | .853 | -.353 |
| NA4_Music | .858 | -.363 |
| NA5_Music | .817 | -.365 |
| NA6_Music | .760 | -.375 |
| NA7_Music | .836 | -.320 |
| NA8_Music | .812 | -.392 |
| NA9_Music | .832 | -.290 |
| NA1_Music | .883 | -.199 |
| PA1_Music | -.297 | .721 |
| PA2_Music | -.301 | .740 |
| PA3_Music | -.296 | .755 |
| PA4_Music | -.237 | .753 |
| PA5_Music | -.221 | .865 |
| PA6_Music | -.327 | .735 |
| PA7_Music | -.222 | .772 |
| PA8_Music | -.344 | .709 |
| PA9_Music | -.259 | .830 |
| PA1_Music | -.311 | .668 |

Extraction Method: Principal Axis Factoring.

Rotation Method: Quartimax with Kaiser Normalization.[a]

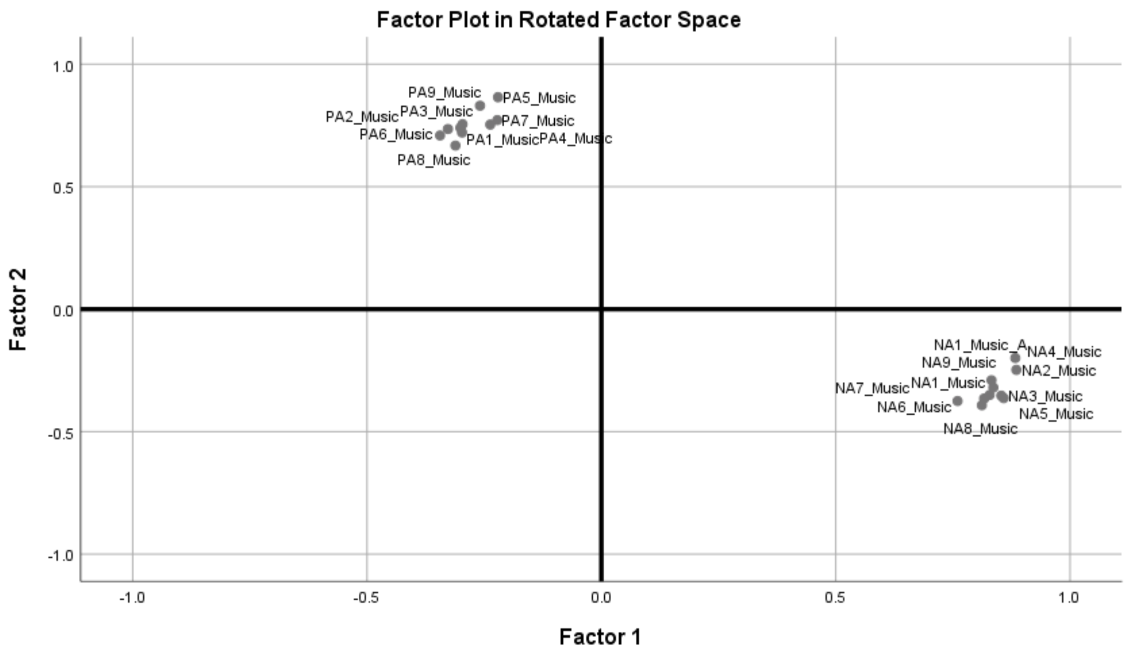
a. Rotation converged in 3 iterations.

**Factor Transformation Matrix**

| Factor | 1 | 2 |
|---|---|---|
| 1 | .743 | -.670 |

| | | |
|---|---|---|
| 2 | .670 | .743 |

Extraction Method: Principal Axis Factoring.
Rotation Method: Quartimax with Kaiser Normalization.




## Factor Analysis

**Descriptive Statistics**

| | Mean | Std. Deviation | Analysis N |
|---|---|---|---|
| NA1_Drunk | 5.38 | 1.735 | 177 |
| NA2_Drunk | 5.23 | 1.751 | 177 |
| NA3_Drunk | 5.19 | 1.792 | 177 |
| NA4_Drunk | 5.19 | 1.821 | 177 |
| NA5_Drunk | 5.57 | 1.647 | 177 |
| NA6_Drunk | 5.61 | 1.610 | 177 |
| NA7_Drunk | 5.37 | 1.737 | 177 |
| NA8_Drunk | 5.23 | 1.680 | 177 |
| NA9_Drunk | 5.44 | 1.602 | 177 |
| NA1_Drunk | 4.90 | 1.885 | 177 |
| PA1_Drunk | 2.47 | 1.736 | 177 |
| PA2_Drunk | 2.54 | 1.803 | 177 |

| | | | |
|---|---|---|---|
| PA3_Drunk | 2.29 | 1.653 | 177 |
| PA4_Drunk | 2.42 | 1.767 | 177 |
| PA5_Drunk | 2.47 | 1.732 | 177 |
| PA6_Drunk | 2.82 | 1.783 | 177 |
| PA7_Drunk | 2.60 | 1.775 | 177 |
| PA8_Drunk | 2.37 | 1.711 | 177 |
| PA9_Drunk | 2.56 | 1.780 | 177 |
| PA1_Drunk | 2.57 | 1.767 | 177 |

**Communalities**

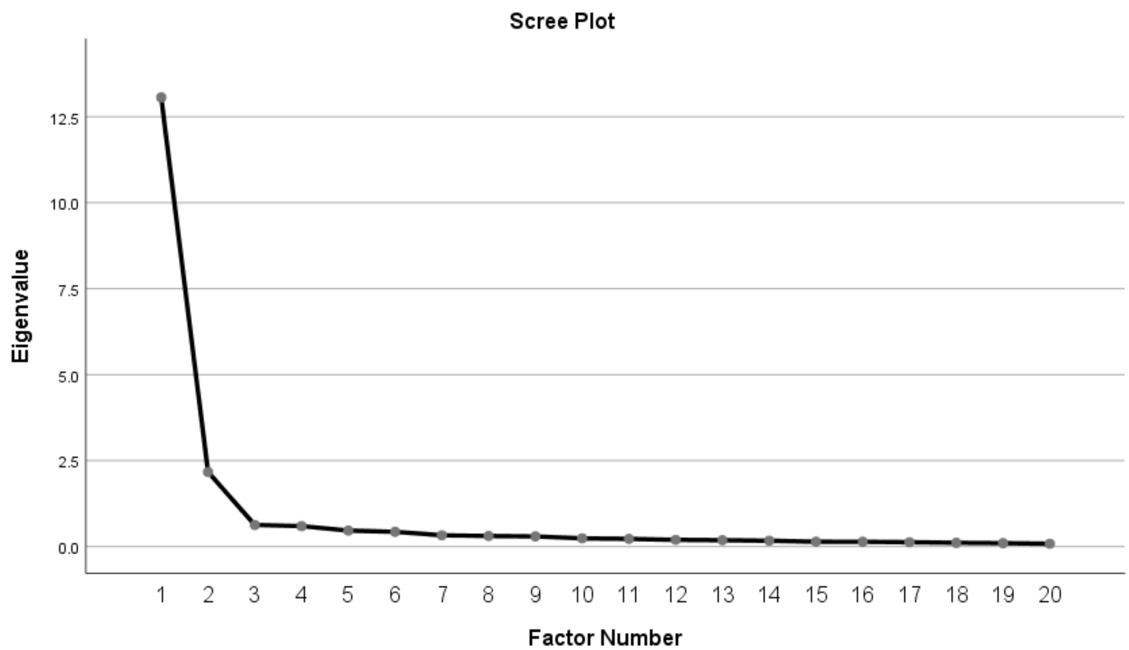
| | Initial | Extraction |
|---|---|---|
| NA1_Drunk | .758 | .735 |
| NA2_Drunk | .805 | .823 |
| NA3_Drunk | .770 | .684 |
| NA4_Drunk | .640 | .604 |
| NA5_Drunk | .737 | .637 |
| NA6_Drunk | .756 | .669 |
| NA7_Drunk | .746 | .645 |
| NA8_Drunk | .746 | .667 |
| NA9_Drunk | .789 | .727 |
| NA1_Drunk | .730 | .693 |
| PA1_Drunk | .853 | .835 |
| PA2_Drunk | .725 | .692 |
| PA3_Drunk | .829 | .806 |
| PA4_Drunk | .851 | .813 |
| PA5_Drunk | .777 | .698 |
| PA6_Drunk | .776 | .731 |
| PA7_Drunk | .830 | .823 |
| PA8_Drunk | .837 | .825 |
| PA9_Drunk | .848 | .834 |
| PA1_Drunk | .793 | .775 |

Extraction Method: Principal Axis Factoring.

**Total Variance Explained**

| Factor | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 13.061 | 65.306 | 65.306 | 12.804 | 64.019 | 64.019 | 12.800 | 64.001 | 64.001 |
| 2 | 2.170 | 10.852 | 76.158 | 1.912 | 9.558 | 73.577 | 1.915 | 9.575 | 73.577 |
| 3 | .629 | 3.145 | 79.302 | | | | | | |
| 4 | .595 | 2.974 | 82.277 | | | | | | |
| 5 | .464 | 2.320 | 84.597 | | | | | | |
| 6 | .429 | 2.147 | 86.744 | | | | | | |
| 7 | .327 | 1.634 | 88.377 | | | | | | |
| 8 | .309 | 1.547 | 89.924 | | | | | | |
| 9 | .296 | 1.480 | 91.404 | | | | | | |
| 10 | .239 | 1.193 | 92.598 | | | | | | |
| 11 | .224 | 1.118 | 93.716 | | | | | | |
| 12 | .197 | .984 | 94.700 | | | | | | |
| 13 | .186 | .931 | 95.631 | | | | | | |
| 14 | .171 | .853 | 96.484 | | | | | | |
| 15 | .142 | .712 | 97.195 | | | | | | |
| 16 | .139 | .695 | 97.890 | | | | | | |
| 17 | .128 | .640 | 98.530 | | | | | | |
| 18 | .110 | .551 | 99.081 | | | | | | |
| 19 | .100 | .499 | 99.581 | | | | | | |
| 20 | .084 | .419 | 100.000 | | | | | | |

Extraction Method: Principal Axis Factoring.




**Factor Matrix**[a]

| | Factor | |
|---|---|---|
| | 1 | 2 |
| NA1_Drunk | -.807 | .289 |
| NA2_Drunk | -.798 | .432 |
| NA3_Drunk | -.760 | .327 |
| NA4_Drunk | -.698 | .341 |
| NA5_Drunk | -.776 | .185 |
| NA6_Drunk | -.775 | .262 |
| NA7_Drunk | -.749 | .289 |
| NA8_Drunk | -.749 | .326 |
| NA9_Drunk | -.785 | .331 |
| NA1_Drunk | -.742 | .378 |
| PA1_Drunk | .833 | .376 |
| PA2_Drunk | .771 | .311 |
| PA3_Drunk | .853 | .281 |
| PA4_Drunk | .853 | .290 |
| PA5_Drunk | .788 | .277 |
| PA6_Drunk | .839 | .166 |
| PA7_Drunk | .877 | .233 |
| PA8_Drunk | .834 | .360 |
| PA9_Drunk | .856 | .320 |
| PA1_Drunk | .834 | .283 |

Extraction Method: Principal Axis Factoring.

a. 2 factors extracted. 4 iterations required.

**Rotated Factor Matrix[a]**

| | Factor | |
|---|---|---|
| | 1 | 2 |
| NA1_Drunk | -.812 | .275 |
| NA2_Drunk | -.805 | .418 |
| NA3_Drunk | -.766 | .313 |
| NA4_Drunk | -.704 | .329 |
| NA5_Drunk | -.779 | .171 |
| NA6_Drunk | -.779 | .248 |
| NA7_Drunk | -.755 | .275 |
| NA8_Drunk | -.754 | .313 |
| NA9_Drunk | -.791 | .317 |
| NA1_Drunk | -.748 | .364 |
| PA1_Drunk | .826 | .390 |
| PA2_Drunk | .766 | .325 |
| PA3_Drunk | .847 | .297 |
| PA4_Drunk | .848 | .306 |
| PA5_Drunk | .783 | .291 |
| PA6_Drunk | .836 | .181 |
| PA7_Drunk | .872 | .249 |
| PA8_Drunk | .827 | .375 |
| PA9_Drunk | .850 | .335 |
| PA1_Drunk | .828 | .298 |

Extraction Method: Principal Axis Factoring.

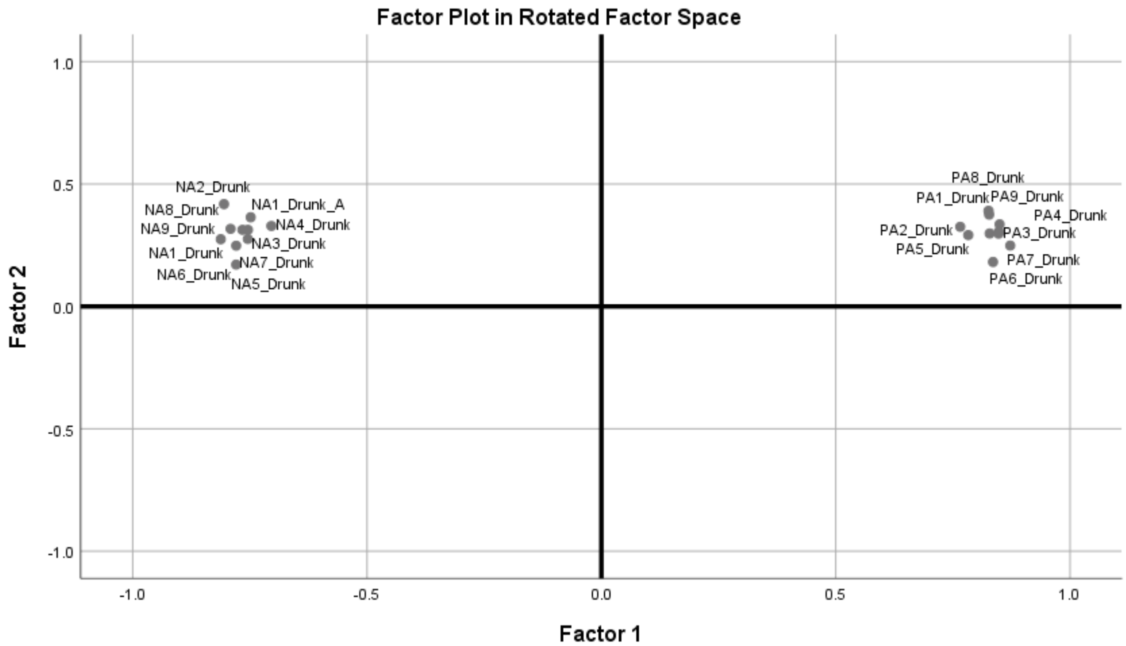
Rotation Method: Quartimax with Kaiser Normalization.[a]

a. Rotation converged in 3 iterations.

**Factor Transformation Matrix**

| Factor | 1 | 2 |
|---|---|---|
| 1 | 1.000 | .018 |
| 2 | -.018 | 1.000 |

Extraction Method: Principal Axis Factoring.
Rotation Method: Quartimax with Kaiser Normalization.




### *O.1.3 Factor Analysis: 1 Factor*

## Factor Analysis

**Communalities**

| | Initial | Extraction |
|---|---|---|
| NA1_Calc | .913 | .818 |
| NA2_Calc | .844 | .771 |
| NA3_Calc | .870 | .777 |
| NA4_Calc | .894 | .832 |
| NA5_Calc | .884 | .797 |
| NA6_Calc | .751 | .646 |
| NA7_Calc | .702 | .607 |
| NA8_Calc | .894 | .782 |
| NA9_Calc | .785 | .692 |
| NA1_Calc | .812 | .713 |
| PA1_Calc | .730 | .552 |

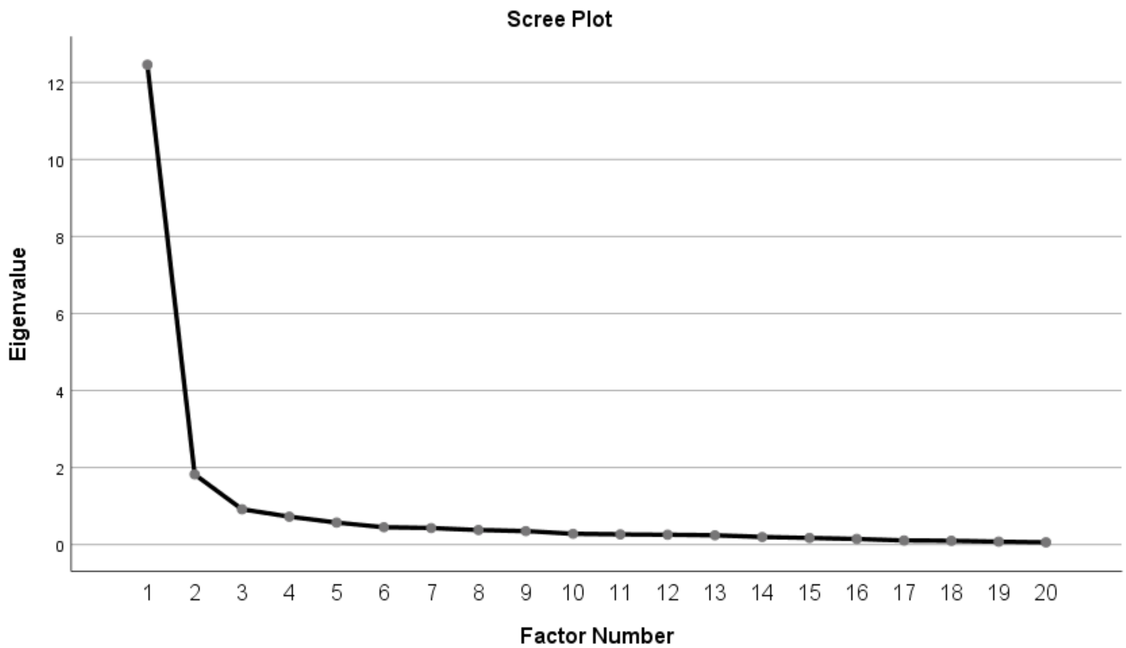
| | | |
|---|---|---|
| PA2_Calc | .601 | .462 |
| PA3_Calc | .675 | .585 |
| PA4_Calc | .640 | .435 |
| PA5_Calc | .545 | .326 |
| PA6_Calc | .703 | .584 |
| PA7_Calc | .615 | .417 |
| PA8_Calc | .621 | .426 |
| PA9_Calc | .598 | .508 |
| PA1_Calc | .531 | .374 |

Extraction Method: Principal Axis Factoring.

## Total Variance Explained

| | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| Factor | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 12.459 | 62.295 | 62.295 | 12.104 | 60.520 | 60.520 |
| 2 | 1.822 | 9.110 | 71.405 | | | |
| 3 | .916 | 4.582 | 75.987 | | | |
| 4 | .725 | 3.625 | 79.612 | | | |
| 5 | .572 | 2.859 | 82.470 | | | |
| 6 | .450 | 2.252 | 84.723 | | | |
| 7 | .430 | 2.151 | 86.874 | | | |
| 8 | .378 | 1.889 | 88.762 | | | |
| 9 | .351 | 1.754 | 90.516 | | | |
| 10 | .280 | 1.402 | 91.918 | | | |
| 11 | .265 | 1.326 | 93.244 | | | |
| 12 | .255 | 1.277 | 94.522 | | | |
| 13 | .241 | 1.205 | 95.726 | | | |
| 14 | .197 | .986 | 96.712 | | | |
| 15 | .172 | .861 | 97.573 | | | |
| 16 | .146 | .730 | 98.304 | | | |
| 17 | .107 | .534 | 98.838 | | | |
| 18 | .098 | .491 | 99.329 | | | |
| 19 | .076 | .378 | 99.707 | | | |
| 20 | .059 | .293 | 100.000 | | | |

Extraction Method: Principal Axis Factoring.




**Factor Matrix[a]**

| | Factor |
|---|---|
| | 1 |
| NA1_Calc | .904 |
| NA2_Calc | .878 |
| NA3_Calc | .882 |
| NA4_Calc | .912 |
| NA5_Calc | .893 |
| NA6_Calc | .804 |
| NA7_Calc | .779 |
| NA8_Calc | .884 |
| NA9_Calc | .832 |
| NA1_Calc | .844 |
| PA1_Calc | -.743 |
| PA2_Calc | -.680 |
| PA3_Calc | -.765 |
| PA4_Calc | -.659 |
| PA5_Calc | -.571 |
| PA6_Calc | -.764 |
| PA7_Calc | -.645 |
| PA8_Calc | -.653 |
| PA9_Calc | -.713 |

| | |
|---|---|
| PA1_Calc | -.612 |

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 3 iterations required.

## Factor Analysis

**Communalities**

| | Initial | Extraction |
|---|---|---|
| NA1_Ecig | .769 | .613 |
| NA2_Ecig | .785 | .614 |
| NA3_Ecig | .801 | .600 |
| NA4_Ecig | .761 | .632 |
| NA5_Ecig | .764 | .663 |
| NA6_Ecig | .800 | .681 |
| NA7_Ecig | .759 | .574 |
| NA8_Ecig | .786 | .513 |
| NA9_Ecig | .884 | .739 |
| NA1_Ecig | .785 | .503 |
| PA1_Ecig | .772 | .635 |
| PA2_Ecig | .753 | .681 |
| PA3_Ecig | .796 | .615 |
| PA4_Ecig | .762 | .593 |
| PA5_Ecig | .739 | .518 |
| PA6_Ecig | .800 | .719 |
| PA7_Ecig | .786 | .669 |
| PA8_Ecig | .737 | .606 |
| PA9_Ecig | .824 | .703 |
| PA1_Ecig | .814 | .667 |

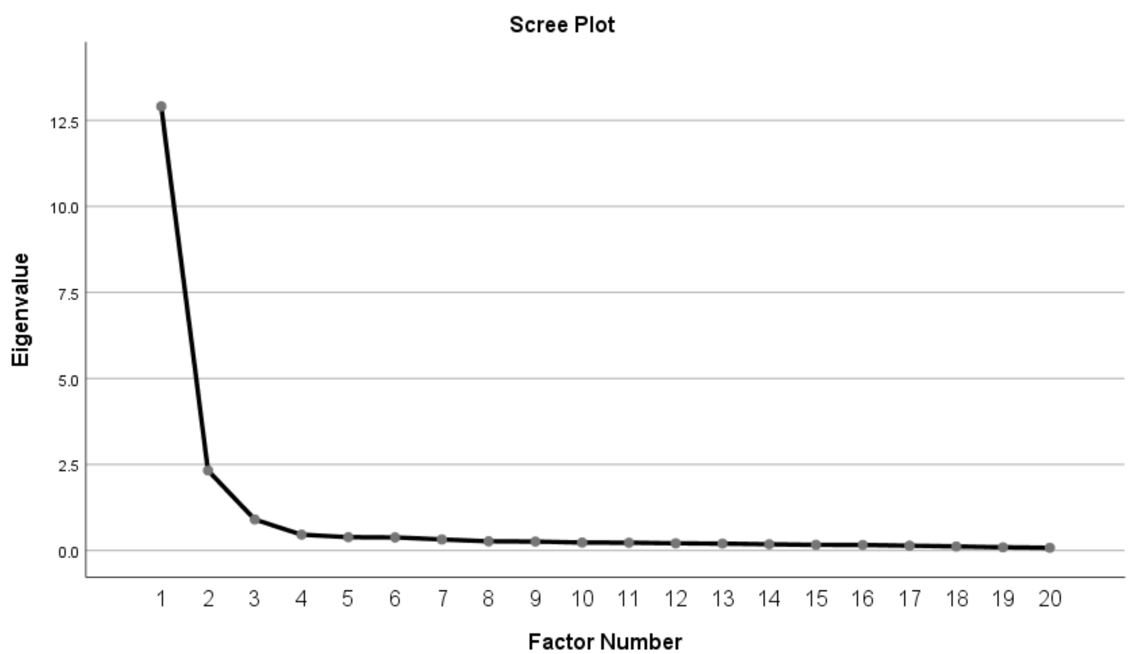
Extraction Method: Principal Axis Factoring.

**Total Variance Explained**

| | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| Factor | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 12.906 | 64.529 | 64.529 | 12.539 | 62.695 | 62.695 |
| 2 | 2.325 | 11.627 | 76.155 | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 3 | .901 | 4.507 | 80.662 | | | |
| 4 | .460 | 2.302 | 82.964 | | | |
| 5 | .386 | 1.930 | 84.894 | | | |
| 6 | .380 | 1.898 | 86.792 | | | |
| 7 | .320 | 1.601 | 88.393 | | | |
| 8 | .266 | 1.331 | 89.724 | | | |
| 9 | .259 | 1.293 | 91.017 | | | |
| 10 | .230 | 1.151 | 92.168 | | | |
| 11 | .226 | 1.129 | 93.297 | | | |
| 12 | .208 | 1.041 | 94.338 | | | |
| 13 | .199 | .996 | 95.335 | | | |
| 14 | .180 | .902 | 96.237 | | | |
| 15 | .164 | .821 | 97.058 | | | |
| 16 | .160 | .802 | 97.860 | | | |
| 17 | .139 | .693 | 98.553 | | | |
| 18 | .118 | .588 | 99.142 | | | |
| 19 | .093 | .463 | 99.605 | | | |
| 20 | .079 | .395 | 100.000 | | | |

Extraction Method: Principal Axis Factoring.




**Factor Matrix[a]**

| | Factor |
|---|---|
| | 1 |
| NA1_Ecig | -.783 |
| NA2_Ecig | -.783 |
| NA3_Ecig | -.774 |
| NA4_Ecig | -.795 |
| NA5_Ecig | -.814 |
| NA6_Ecig | -.825 |
| NA7_Ecig | -.758 |
| NA8_Ecig | -.716 |
| NA9_Ecig | -.860 |
| NA1_Ecig | -.709 |
| PA1_Ecig | .797 |
| PA2_Ecig | .825 |
| PA3_Ecig | .784 |
| PA4_Ecig | .770 |
| PA5_Ecig | .720 |
| PA6_Ecig | .848 |
| PA7_Ecig | .818 |
| PA8_Ecig | .779 |
| PA9_Ecig | .839 |
| PA1_Ecig | .817 |

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 4 iterations required.

# Factor Analysis

**Communalities**

| | Initial | Extraction |
|---|---|---|
| NA1_Music | .873 | .720 |
| NA2_Music | .910 | .666 |
| NA3_Music | .881 | .753 |
| NA4_Music | .928 | .772 |
| NA5_Music | .891 | .723 |
| NA6_Music | .801 | .667 |
| NA7_Music | .861 | .693 |

| | | |
|---|---|---|
| NA8_Music | .866 | .750 |
| NA9_Music | .824 | .654 |
| NA1_Music | .840 | .609 |
| PA1_Music | .661 | .490 |
| PA2_Music | .742 | .511 |
| PA3_Music | .748 | .520 |
| PA4_Music | .695 | .455 |
| PA5_Music | .810 | .534 |
| PA6_Music | .806 | .536 |
| PA7_Music | .691 | .454 |
| PA8_Music | .734 | .531 |
| PA9_Music | .809 | .546 |
| PA1_Music | .652 | .459 |

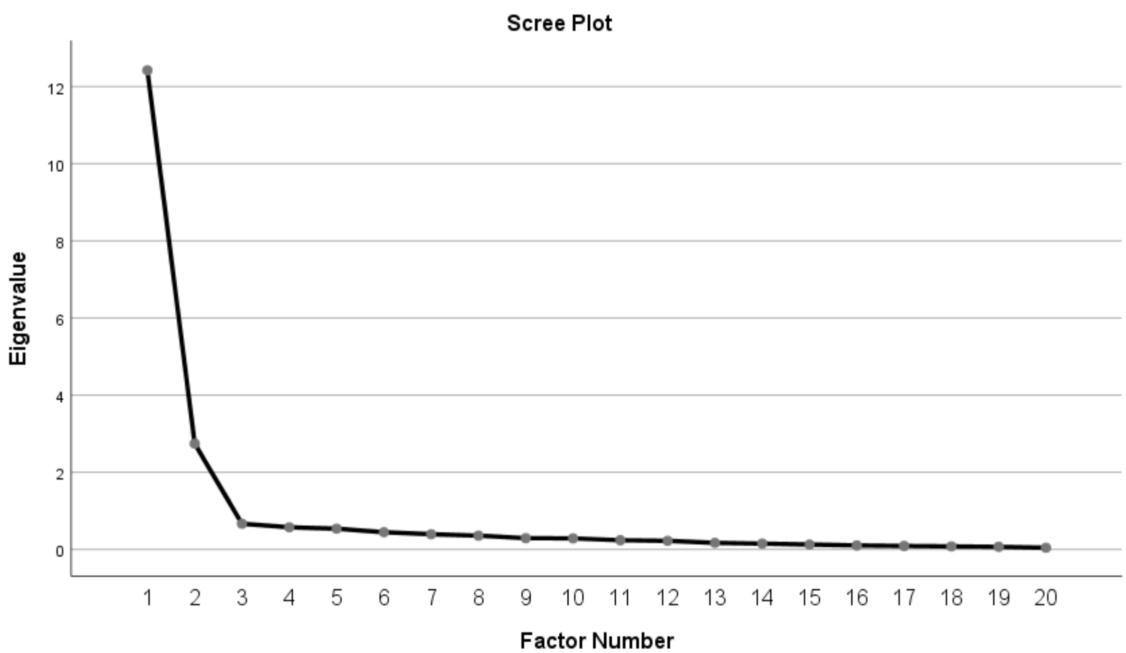
Extraction Method: Principal Axis Factoring.

**Total Variance Explained**

| Factor | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 12.421 | 62.104 | 62.104 | 12.041 | 60.204 | 60.204 |
| 2 | 2.743 | 13.717 | 75.821 | | | |
| 3 | .665 | 3.327 | 79.148 | | | |
| 4 | .574 | 2.871 | 82.020 | | | |
| 5 | .538 | 2.690 | 84.709 | | | |
| 6 | .446 | 2.231 | 86.941 | | | |
| 7 | .393 | 1.965 | 88.906 | | | |
| 8 | .357 | 1.783 | 90.688 | | | |
| 9 | .291 | 1.456 | 92.144 | | | |
| 10 | .286 | 1.429 | 93.573 | | | |
| 11 | .238 | 1.188 | 94.761 | | | |
| 12 | .223 | 1.113 | 95.874 | | | |
| 13 | .169 | .847 | 96.721 | | | |
| 14 | .150 | .751 | 97.472 | | | |
| 15 | .126 | .630 | 98.102 | | | |
| 16 | .103 | .515 | 98.618 | | | |
| 17 | .089 | .443 | 99.061 | | | |
| 18 | .078 | .391 | 99.452 | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 19 | .068 | .338 | 99.790 | | | |
| 20 | .042 | .210 | 100.000 | | | |

Extraction Method: Principal Axis Factoring.




**Factor Matrix[a]**

| | Factor |
|---|---|
| | 1 |
| NA1_Music | .848 |
| NA2_Music | .816 |
| NA3_Music | .868 |
| NA4_Music | .878 |
| NA5_Music | .850 |
| NA6_Music | .817 |
| NA7_Music | .833 |
| NA8_Music | .866 |
| NA9_Music | .809 |
| NA1_Music | .780 |
| PA1_Music | -.700 |
| PA2_Music | -.715 |
| PA3_Music | -.721 |

| | |
|---|---|
| PA4_Music | -.674 |
| PA5_Music | -.731 |
| PA6_Music | -.732 |
| PA7_Music | -.674 |
| PA8_Music | -.729 |
| PA9_Music | -.739 |
| PA1_Music | -.677 |

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 4 iterations required.

## Factor Analysis

**Communalities**

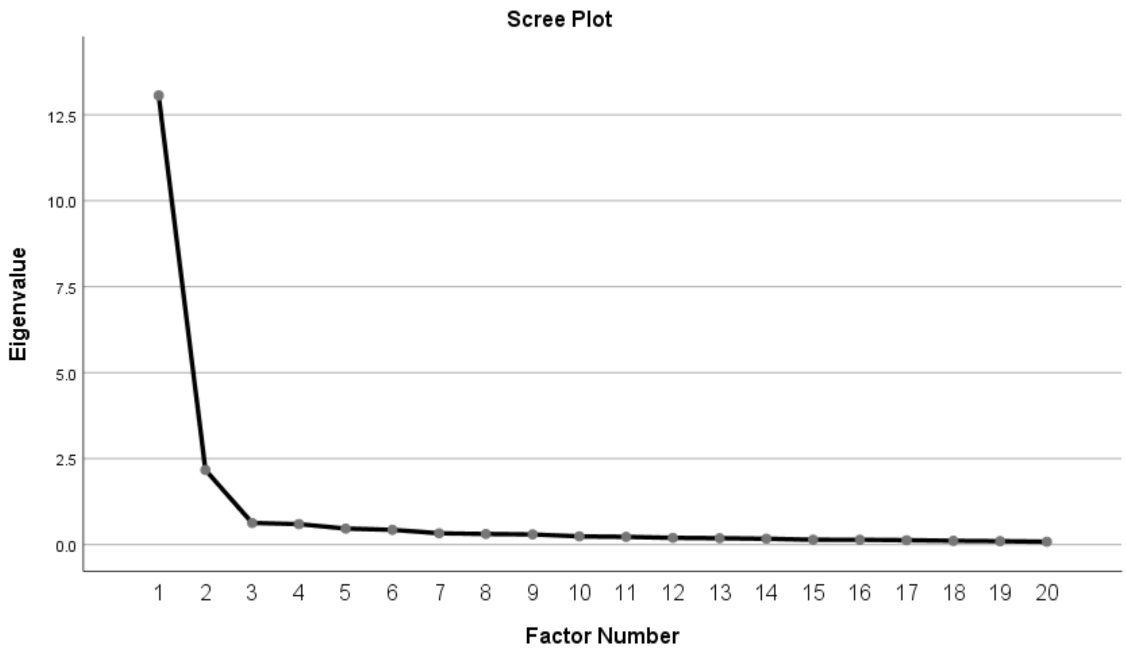
| | Initial | Extraction |
|---|---|---|
| NA1_Drunk | .758 | .647 |
| NA2_Drunk | .805 | .621 |
| NA3_Drunk | .770 | .572 |
| NA4_Drunk | .640 | .482 |
| NA5_Drunk | .737 | .604 |
| NA6_Drunk | .756 | .598 |
| NA7_Drunk | .746 | .558 |
| NA8_Drunk | .746 | .555 |
| NA9_Drunk | .789 | .610 |
| NA1_Drunk | .730 | .541 |
| PA1_Drunk | .853 | .683 |
| PA2_Drunk | .725 | .590 |
| PA3_Drunk | .829 | .723 |
| PA4_Drunk | .851 | .724 |
| PA5_Drunk | .777 | .618 |
| PA6_Drunk | .776 | .706 |
| PA7_Drunk | .830 | .768 |
| PA8_Drunk | .837 | .686 |
| PA9_Drunk | .848 | .725 |
| PA1_Drunk | .793 | .691 |

Extraction Method: Principal Axis Factoring.

**Total Variance Explained**

| Factor | Initial Eigenvalues Total | % of Variance | Cumulative % | Extraction Sums of Squared Loadings Total | % of Variance | Cumulative % |
|---|---|---|---|---|---|---|
| 1 | 13.061 | 65.306 | 65.306 | 12.705 | 63.524 | 63.524 |
| 2 | 2.170 | 10.852 | 76.158 | | | |
| 3 | .629 | 3.145 | 79.302 | | | |
| 4 | .595 | 2.974 | 82.277 | | | |
| 5 | .464 | 2.320 | 84.597 | | | |
| 6 | .429 | 2.147 | 86.744 | | | |
| 7 | .327 | 1.634 | 88.377 | | | |
| 8 | .309 | 1.547 | 89.924 | | | |
| 9 | .296 | 1.480 | 91.404 | | | |
| 10 | .239 | 1.193 | 92.598 | | | |
| 11 | .224 | 1.118 | 93.716 | | | |
| 12 | .197 | .984 | 94.700 | | | |
| 13 | .186 | .931 | 95.631 | | | |
| 14 | .171 | .853 | 96.484 | | | |
| 15 | .142 | .712 | 97.195 | | | |
| 16 | .139 | .695 | 97.890 | | | |
| 17 | .128 | .640 | 98.530 | | | |
| 18 | .110 | .551 | 99.081 | | | |
| 19 | .100 | .499 | 99.581 | | | |
| 20 | .084 | .419 | 100.000 | | | |

Extraction Method: Principal Axis Factoring.




**Factor Matrix[a]**

| | Factor |
|---|---|
| | 1 |
| NA1_Drunk | -.805 |
| NA2_Drunk | -.788 |
| NA3_Drunk | -.756 |
| NA4_Drunk | -.694 |
| NA5_Drunk | -.777 |
| NA6_Drunk | -.773 |
| NA7_Drunk | -.747 |
| NA8_Drunk | -.745 |
| NA9_Drunk | -.781 |
| NA1_Drunk | -.736 |
| PA1_Drunk | .826 |
| PA2_Drunk | .768 |
| PA3_Drunk | .850 |
| PA4_Drunk | .851 |
| PA5_Drunk | .786 |
| PA6_Drunk | .840 |
| PA7_Drunk | .876 |

| | |
|---|---|
| PA8_Drunk | .828 |
| PA9_Drunk | .852 |
| PA1_Drunk | .832 |

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 3 iterations required.

## O.2 Probability x Severity Items

# Factor Analysis

**Descriptive Statistics**

| | Mean | Std. Deviation | Analysis N |
|---|---|---|---|
| PXSRiskyEcig_Total | 3.445762711864407 | 1.118438750593419 | 177 |
| PXSCatEcig_Total | 2.999435028248587 | 1.193376472981620 | 177 |
| PXSDisEcig_Total | 2.997740112994351 | 1.195633856345087 | 177 |
| PXSDesEcig_Total | 3.122033898305084 | 1.162051643246396 | 177 |
| PXSTragicEcig_Total | 3.035593220338983 | 1.165765849306078 | 177 |
| PXSSeveEcig_Total | 3.095480225988700 | 1.126933651805942 | 177 |
| PXSDreadEcig_Total | 3.031073446327683 | 1.190442755785536 | 177 |
| PXSAwfEcig_Total | 3.116949152542372 | 1.150368400829542 | 177 |
| PXSBadEcig_Total | 3.202259887005650 | 1.143805192521272 | 177 |
| PXSUnpleasEcig_Total | 3.254802259887006 | 1.114058964081080 | 177 |
| PXSDissapEcig_Total | 3.232203389830508 | 1.200393971023789 | 177 |

**Communalities**

| | Initial | Extraction |
|---|---|---|
| PXSRiskyEcig_Total | .849 | .789 |
| PXSCatEcig_Total | .901 | .852 |
| PXSDisEcig_Total | .942 | .904 |
| PXSDesEcig_Total | .941 | .940 |
| PXSTragicEcig_Total | .958 | .929 |
| PXSSeveEcig_Total | .944 | .937 |
| PXSDreadEcig_Total | .946 | .935 |
| PXSAwfEcig_Total | .935 | .917 |

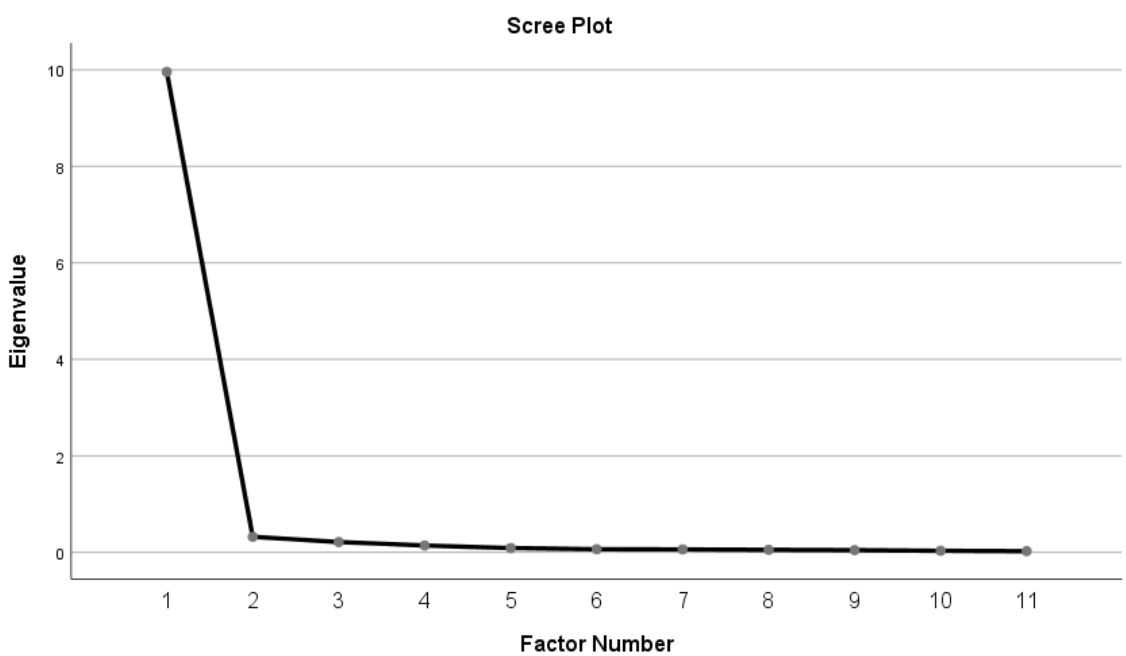
| | | |
|---|---|---|
| PXSBadEcig_Total | .955 | .925 |
| PXSUnpleasEcig_Total | .945 | .922 |
| PXSDissapEcig_Total | .836 | .804 |

Extraction Method: Principal Axis Factoring.

## Total Variance Explained

| | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| Factor | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 9.957 | 90.517 | 90.517 | 9.856 | 89.599 | 89.599 |
| 2 | .321 | 2.921 | 93.438 | | | |
| 3 | .214 | 1.948 | 95.386 | | | |
| 4 | .142 | 1.290 | 96.675 | | | |
| 5 | .089 | .805 | 97.480 | | | |
| 6 | .064 | .582 | 98.062 | | | |
| 7 | .061 | .556 | 98.618 | | | |
| 8 | .051 | .465 | 99.083 | | | |
| 9 | .044 | .401 | 99.484 | | | |
| 10 | .033 | .298 | 99.782 | | | |
| 11 | .024 | .218 | 100.000 | | | |

Extraction Method: Principal Axis Factoring.



**Factor Matrix[a]**

| | Factor |
|---|---|
| | 1 |
| PXSRiskyEcig_Total | .889 |
| PXSCatEcig_Total | .923 |
| PXSDisEcig_Total | .951 |
| PXSDesEcig_Total | .970 |
| PXSTragicEcig_Total | .964 |
| PXSSeveEcig_Total | .968 |
| PXSDreadEcig_Total | .967 |
| PXSAwfEcig_Total | .958 |
| PXSBadEcig_Total | .962 |
| PXSUnpleasEcig_Total | .960 |
| PXSDissapEcig_Total | .897 |

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 3 iterations required.

## Factor Analysis

**Descriptive Statistics**

| | Mean | Std. Deviation | Analysis N |
|---|---|---|---|
| PxSRisky_Calc_Total | 1.384180790960452 | .731109470625301 | 177 |
| PXSCatCalc_Total | 1.333898305084746 | .730879802056349 | 177 |
| PXSDisCalc_Total | 1.331638418079096 | .730437387875631 | 177 |
| PXSDesCalc_Total | 1.337853107344633 | .718570171894376 | 177 |
| PXSTragicCalc_Total | 1.312994350282486 | .713904568498090 | 177 |
| PXSSeveCalc_Total | 1.342937853107344 | .758039008337482 | 177 |
| PXSDreadCalc_Total | 1.316949152542372 | .718541580621235 | 177 |
| PXSAwfCalc_Total | 1.348587570621469 | .729890040335526 | 177 |
| PXSBadCalc_Total | 1.368926553672316 | .714695962237527 | 177 |
| PXSUnpleasCalc_Total | 1.355367231638418 | .704842830360814 | 177 |

| | | | |
|---|---|---|---|
| PXSDissapCalc_Total | 1.432768361581920 | .794833971738555 | 177 |

**Communalities**

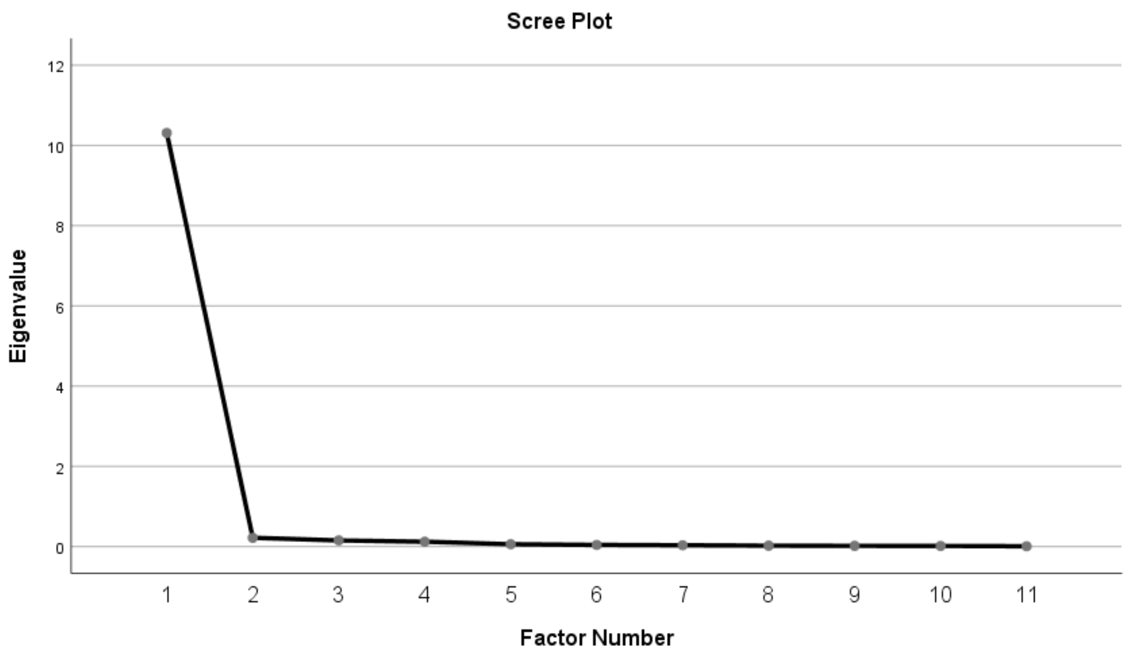
| | Initial | Extraction |
|---|---|---|
| PxSRisky_Calc_Total | .858 | .848 |
| PXSCatCalc_Total | .985 | .972 |
| PXSDisCalc_Total | .985 | .969 |
| PXSDesCalc_Total | .969 | .970 |
| PXSTragicCalc_Total | .979 | .959 |
| PXSSeveCalc_Total | .980 | .938 |
| PXSDreadCalc_Total | .958 | .916 |
| PXSAwfCalc_Total | .974 | .963 |
| PXSBadCalc_Total | .945 | .940 |
| PXSUnpleasCalc_Total | .975 | .959 |
| PXSDissapCalc_Total | .888 | .811 |

Extraction Method: Principal Axis Factoring.

**Total Variance Explained**

| | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| Factor | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 10.311 | 93.733 | 93.733 | 10.245 | 93.132 | 93.132 |
| 2 | .218 | 1.985 | 95.718 | | | |
| 3 | .154 | 1.397 | 97.116 | | | |
| 4 | .120 | 1.093 | 98.208 | | | |
| 5 | .060 | .542 | 98.750 | | | |
| 6 | .040 | .367 | 99.117 | | | |
| 7 | .034 | .310 | 99.427 | | | |
| 8 | .023 | .210 | 99.637 | | | |
| 9 | .018 | .163 | 99.800 | | | |
| 10 | .015 | .136 | 99.937 | | | |
| 11 | .007 | .063 | 100.000 | | | |

Extraction Method: Principal Axis Factoring.




**Factor Matrix**[a]

| | Factor |
| --- | --- |
| | 1 |
| PxSRisky_Calc_Total | .921 |
| PXSCatCalc_Total | .986 |
| PXSDisCalc_Total | .985 |
| PXSDesCalc_Total | .985 |
| PXSTragicCalc_Total | .979 |
| PXSSeveCalc_Total | .969 |
| PXSDreadCalc_Total | .957 |
| PXSAwfCalc_Total | .981 |
| PXSBadCalc_Total | .969 |
| PXSUnpleasCalc_Total | .979 |
| PXSDissapCalc_Total | .901 |

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 4 iterations required.

## Factor Analysis

**Descriptive Statistics**

| | Mean | Std. Deviation | Analysis N |
|---|---|---|---|
| PXSRiskymusic_Total | 1.473446327683615 | .775348886792677 | 177 |
| PXSCatmusic_Total | 1.361016949152542 | .728950899912897 | 177 |
| PXSDismusic_Total | 1.337853107344632 | .678971415337496 | 177 |
| PXSDesmusic_Total | 1.371186440677965 | .716141217534267 | 177 |
| PXSTragicmusic_Total | 1.344632768361582 | .687788786991357 | 177 |
| PXSSevemusic_Total | 1.353107344632768 | .699191054331442 | 177 |
| PXSDreadmusic_Total | 1.345197740112994 | .674614444091351 | 177 |
| PXSAwfmusic_Total | 1.343502824858756 | .662703777616347 | 177 |
| PXSBadmusic_Total | 1.384180790960451 | .673507213865536 | 177 |
| PXSUnpleasmusic_Total | 1.448022598870056 | .713035316883218 | 177 |
| PXSDissapmusic_Total | 1.495480225988700 | .717224702415146 | 177 |

**Communalities**

| | Initial | Extraction |
|---|---|---|
| PXSRiskymusic_Total | .900 | .785 |
| PXSCatmusic_Total | .923 | .890 |
| PXSDismusic_Total | .962 | .941 |
| PXSDesmusic_Total | .951 | .923 |
| PXSTragicmusic_Total | .954 | .925 |
| PXSSevemusic_Total | .926 | .914 |
| PXSDreadmusic_Total | .945 | .927 |
| PXSAwfmusic_Total | .975 | .942 |
| PXSBadmusic_Total | .951 | .898 |
| PXSUnpleasmusic_Total | .898 | .852 |
| PXSDissapmusic_Total | .752 | .673 |

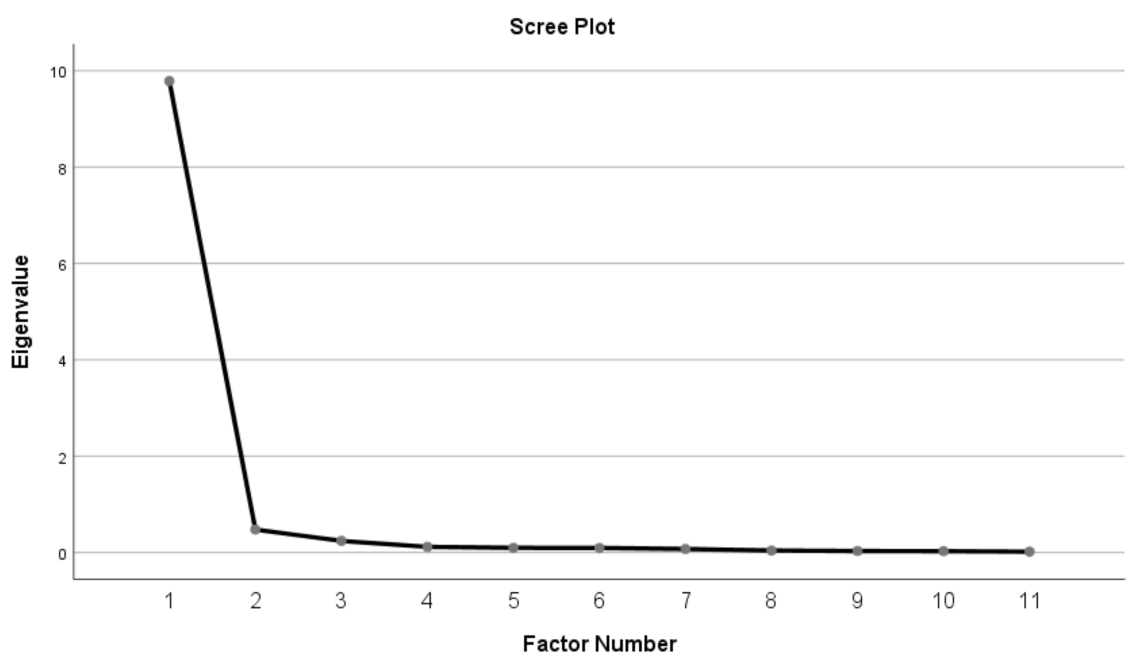
Extraction Method: Principal Axis Factoring.

**Total Variance Explained**

| | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| Factor | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 9.785 | 88.956 | 88.956 | 9.671 | 87.916 | 87.916 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2 | .476 | 4.330 | 93.286 | | | |
| 3 | .240 | 2.184 | 95.470 | | | |
| 4 | .117 | 1.067 | 96.536 | | | |
| 5 | .097 | .879 | 97.416 | | | |
| 6 | .093 | .849 | 98.264 | | | |
| 7 | .073 | .662 | 98.926 | | | |
| 8 | .041 | .376 | 99.302 | | | |
| 9 | .032 | .290 | 99.592 | | | |
| 10 | .027 | .248 | 99.840 | | | |
| 11 | .018 | .160 | 100.000 | | | |

Extraction Method: Principal Axis Factoring.




**Factor Matrix[a]**

| | Factor |
|---|---|
| | 1 |
| PXSRiskymusic_Total | .886 |
| PXSCatmusic_Total | .943 |
| PXSDismusic_Total | .970 |
| PXSDesmusic_Total | .961 |

| | |
|---|---|
| PXSTragicmusic_Total | .962 |
| PXSSevemusic_Total | .956 |
| PXSDreadmusic_Total | .963 |
| PXSAwfmusic_Total | .971 |
| PXSBadmusic_Total | .948 |
| PXSUnpleasmusic_Total | .923 |
| PXSDissapmusic_Total | .821 |

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 4 iterations required.

## Factor Analysis

**Descriptive Statistics**

| | Mean | Std. Deviation | Analysis N |
|---|---|---|---|
| PXSRiskyDrunk_Total | 3.971186440677966 | 1.071434496278284 | 177 |
| PXSCatDrunk_Total | 3.606214689265537 | 1.084716039092636 | 177 |
| PXSDisDrunk_Total | 3.645197740112995 | 1.088468529212385 | 177 |
| PXSDesDrunk_Total | 3.691525423728813 | 1.096423131180931 | 177 |
| PXSTragicDrunk_Total | 3.471186440677966 | 1.108241468517747 | 177 |
| PXSSeveDrunk_Total | 3.591525423728812 | 1.075072112104561 | 177 |
| PXSDreadDrunk_Total | 3.668361581920903 | 1.101607360907948 | 177 |
| PXSAwfDrunk_Total | 3.651412429378531 | 1.094309004922158 | 177 |
| PXSBadDrunk_Total | 3.779096045197740 | 1.088557885062617 | 177 |
| PXSUnpleasDrunk_Total | 3.857062146892656 | 1.074110817025963 | 177 |
| PXSDissapDrunk_Total | 3.854802259887006 | 1.100254149563285 | 177 |

**Communalities**

| | Initial | Extraction |
|---|---|---|
| PXSRiskyDrunk_Total | .758 | .542 |
| PXSCatDrunk_Total | .853 | .731 |
| PXSDisDrunk_Total | .909 | .852 |
| PXSDesDrunk_Total | .911 | .876 |
| PXSTragicDrunk_Total | .909 | .822 |
| PXSSeveDrunk_Total | .909 | .874 |
| PXSDreadDrunk_Total | .907 | .902 |
| PXSAwfDrunk_Total | .920 | .903 |
| PXSBadDrunk_Total | .936 | .877 |

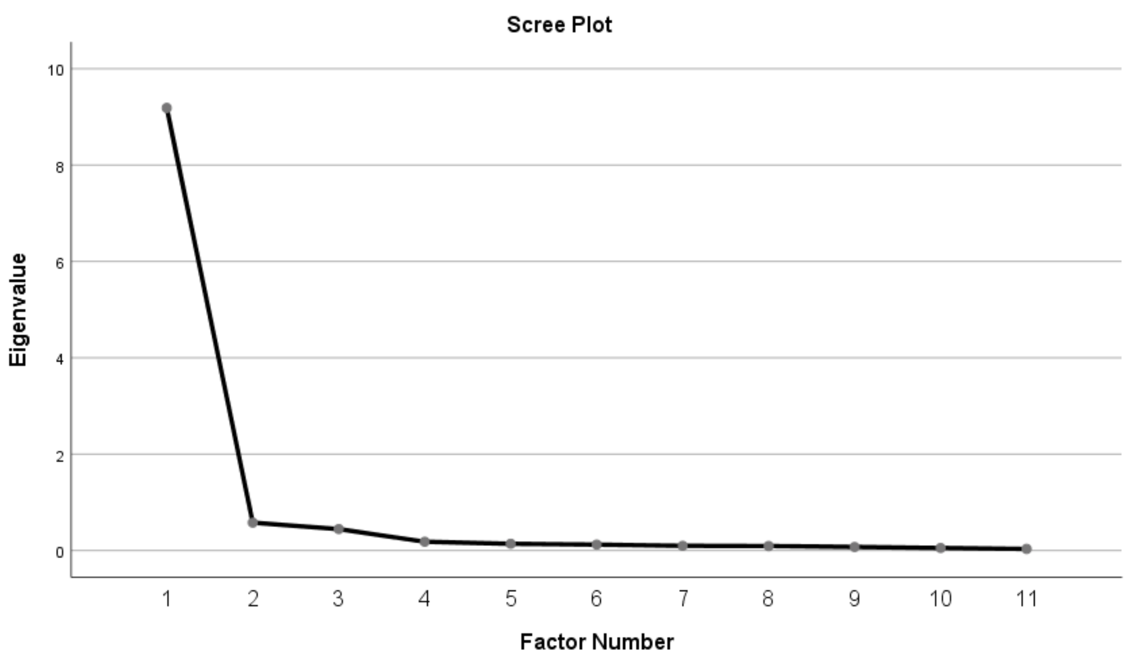
| | | |
|---|---|---|
| PXSUnpleasDrunk_Total | .884 | .845 |
| PXSDissapDrunk_Total | .844 | .793 |

Extraction Method: Principal Axis Factoring.

**Total Variance Explained**

| | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| Factor | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 9.186 | 83.511 | 83.511 | 9.017 | 81.976 | 81.976 |
| 2 | .578 | 5.257 | 88.767 | | | |
| 3 | .445 | 4.046 | 92.813 | | | |
| 4 | .181 | 1.648 | 94.461 | | | |
| 5 | .139 | 1.262 | 95.723 | | | |
| 6 | .123 | 1.117 | 96.840 | | | |
| 7 | .097 | .879 | 97.719 | | | |
| 8 | .092 | .838 | 98.557 | | | |
| 9 | .074 | .671 | 99.228 | | | |
| 10 | .052 | .471 | 99.698 | | | |
| 11 | .033 | .302 | 100.000 | | | |

Extraction Method: Principal Axis Factoring.




**Factor Matrix[a]**

| | Factor |
|---|---|
| | 1 |
| PXSRiskyDrunk_Total | .736 |
| PXSCatDrunk_Total | .855 |
| PXSDisDrunk_Total | .923 |
| PXSDesDrunk_Total | .936 |
| PXSTragicDrunk_Total | .906 |
| PXSSeveDrunk_Total | .935 |
| PXSDreadDrunk_Total | .950 |
| PXSAwfDrunk_Total | .950 |
| PXSBadDrunk_Total | .936 |
| PXSUnpleasDrunk_Total | .919 |
| PXSDissapDrunk_Total | .891 |

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 4 iterations required.

# APPENDIX P. RELIABILITY ANALYSIS OUTPUT

## N.1 Affect Items

## Reliability

## Scale: ALL VARIABLES

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 177 | 100.0 |
| | Excluded[a] | 0 | .0 |
| | Total | 177 | 100.0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .969 | 14 |

## Item Statistics

| | Mean | Std. Deviation | N |
|---|---|---|---|
| RC_NA1_Calc | 6.07 | 1.631 | 177 |
| RC_NA2_Calc | 6.28 | 1.457 | 177 |
| RC_NA3_Calc | 6.10 | 1.609 | 177 |
| RC_NA4_Calc | 6.24 | 1.374 | 177 |
| RC_NA5_Calc | 6.00 | 1.672 | 177 |
| RC_NA6_Calc | 5.94 | 1.719 | 177 |
| RC_NA7_Calc | 5.95 | 1.680 | 177 |
| RC_NA8_Calc | 6.18 | 1.595 | 177 |
| RC_NA9_Calc | 6.03 | 1.728 | 177 |
| RC_NA10_Calc | 6.15 | 1.583 | 177 |
| PA1_Calc | 6.18 | 1.378 | 177 |
| PA3_Calc | 6.11 | 1.430 | 177 |
| PA6_Calc | 6.22 | 1.169 | 177 |
| PA9_Calc | 6.15 | 1.431 | 177 |

## Item-Total Statistics

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|
| RC_NA1_Calc | 79.52 | 279.671 | .908 | .965 |
| RC_NA2_Calc | 79.32 | 285.933 | .889 | .966 |
| RC_NA3_Calc | 79.50 | 280.945 | .896 | .965 |
| RC_NA4_Calc | 79.36 | 287.003 | .923 | .965 |
| RC_NA5_Calc | 79.59 | 278.924 | .897 | .965 |
| RC_NA6_Calc | 79.66 | 281.943 | .813 | .967 |
| RC_NA7_Calc | 79.64 | 284.537 | .785 | .968 |
| RC_NA8_Calc | 79.42 | 281.017 | .903 | .965 |
| RC_NA9_Calc | 79.56 | 279.668 | .851 | .966 |
| RC_NA10_Calc | 79.44 | 283.441 | .861 | .966 |
| PA1_Calc | 79.41 | 297.982 | .672 | .969 |
| PA3_Calc | 79.48 | 295.319 | .702 | .969 |
| PA6_Calc | 79.37 | 301.485 | .714 | .969 |
| PA9_Calc | 79.45 | 297.351 | .657 | .970 |

**Scale Statistics**

| Mean | Variance | Std. Deviation | N of Items |
|---|---|---|---|
| 85.59 | 331.834 | 18.216 | 14 |

# Reliability

## Scale: ALL VARIABLES

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 177 | 100.0 |
| | Excluded[a] | 0 | .0 |
| | Total | 177 | 100.0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .971 | 20 |

**Item Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| RC_NA1_Ecig | 3.10 | 1.870 | 177 |
| RC_NA2_Ecig | 3.63 | 2.019 | 177 |
| RC_NA3_Ecig | 3.53 | 1.904 | 177 |
| RC_NA4_Ecig | 3.48 | 1.963 | 177 |
| RC_NA5_Ecig | 3.08 | 1.861 | 177 |
| RC_NA6_Ecig | 2.97 | 1.724 | 177 |
| RC_NA7_Ecig | 3.00 | 1.692 | 177 |
| RC_NA8_Ecig | 3.84 | 1.924 | 177 |
| RC_NA9_Ecig | 3.42 | 1.869 | 177 |
| RC_NA10_Ecig | 4.08 | 1.965 | 177 |
| PA1_Ecig | 3.29 | 1.943 | 177 |
| PA2_Ecig | 3.06 | 1.858 | 177 |
| PA3_Ecig | 2.85 | 1.851 | 177 |

| | | | |
|---|---|---|---|
| PA4_Ecig | 2.95 | 1.905 | 177 |
| PA5_Ecig | 2.81 | 1.707 | 177 |
| PA6_Ecig | 3.55 | 1.951 | 177 |
| PA7_Ecig | 3.17 | 1.878 | 177 |
| PA8_Ecig | 2.98 | 1.771 | 177 |
| PA9_Ecig | 3.24 | 1.853 | 177 |
| PA1_Ecig | 3.37 | 1.979 | 177 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|
| RC_NA1_Ecig | 62.31 | 819.156 | .773 | .969 |
| RC_NA2_Ecig | 61.77 | 812.074 | .775 | .969 |
| RC_NA3_Ecig | 61.88 | 818.223 | .767 | .969 |
| RC_NA4_Ecig | 61.92 | 813.539 | .786 | .969 |
| RC_NA5_Ecig | 62.32 | 816.627 | .802 | .969 |
| RC_NA6_Ecig | 62.43 | 822.167 | .812 | .969 |
| RC_NA7_Ecig | 62.40 | 829.662 | .747 | .970 |
| RC_NA8_Ecig | 61.56 | 823.339 | .709 | .970 |
| RC_NA9_Ecig | 61.98 | 811.301 | .850 | .968 |
| RC_NA10_Ecig | 61.32 | 822.274 | .703 | .970 |
| PA1_Ecig | 62.11 | 814.942 | .781 | .969 |
| PA2_Ecig | 62.34 | 815.829 | .811 | .969 |
| PA3_Ecig | 62.55 | 820.453 | .768 | .969 |
| PA4_Ecig | 62.45 | 819.567 | .753 | .970 |
| PA5_Ecig | 62.59 | 833.016 | .705 | .970 |
| PA6_Ecig | 61.85 | 808.960 | .834 | .969 |
| PA7_Ecig | 62.23 | 815.554 | .804 | .969 |
| PA8_Ecig | 62.42 | 824.575 | .763 | .969 |
| PA9_Ecig | 62.16 | 814.600 | .825 | .969 |
| PA1_Ecig | 62.03 | 810.959 | .803 | .969 |

**Scale Statistics**

| Mean | Variance | Std. Deviation | N of Items |
|---|---|---|---|
| 65.40 | 905.355 | 30.089 | 20 |

## Reliability

## Scale: ALL VARIABLES

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 177 | 100.0 |
| | Excluded[a] | 0 | .0 |
| | Total | 177 | 100.0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .966 | 17 |

**Item Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| RC_NA1_Music | 5.88 | 1.759 | 177 |
| RC_NA2_Music | 6.19 | 1.440 | 177 |
| RC_NA3_Music | 6.07 | 1.454 | 177 |
| RC_NA4_Music | 6.05 | 1.516 | 177 |
| RC_NA5_Music | 5.86 | 1.731 | 177 |
| RC_NA6_Music | 5.68 | 1.874 | 177 |
| RC_NA7_Music | 5.86 | 1.644 | 177 |
| RC_NA8_Music | 6.03 | 1.559 | 177 |
| RC_NA9_Music | 6.04 | 1.550 | 177 |
| RC_NA10_Music | 6.20 | 1.403 | 177 |
| PA1_Music | 5.98 | 1.460 | 177 |
| PA2_Music | 5.90 | 1.534 | 177 |
| PA3_Music | 5.83 | 1.561 | 177 |
| PA5_Music | 5.89 | 1.488 | 177 |
| PA6_Music | 6.01 | 1.348 | 177 |
| PA8_Music | 5.85 | 1.432 | 177 |
| PA9_Music | 5.99 | 1.426 | 177 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|
| RC_NA1_Music | 95.44 | 383.622 | .853 | .962 |
| RC_NA2_Music | 95.13 | 396.216 | .823 | .963 |
| RC_NA3_Music | 95.24 | 393.026 | .873 | .962 |
| RC_NA4_Music | 95.27 | 390.480 | .879 | .962 |
| RC_NA5_Music | 95.46 | 384.681 | .851 | .962 |
| RC_NA6_Music | 95.63 | 382.347 | .813 | .963 |
| RC_NA7_Music | 95.46 | 388.568 | .836 | .963 |
| RC_NA8_Music | 95.28 | 389.965 | .862 | .962 |
| RC_NA9_Music | 95.28 | 392.929 | .816 | .963 |
| RC_NA10_Music | 95.11 | 399.055 | .792 | .963 |
| PA1_Music | 95.33 | 404.178 | .667 | .965 |
| PA2_Music | 95.42 | 401.461 | .677 | .965 |
| PA3_Music | 95.49 | 400.422 | .682 | .965 |
| PA5_Music | 95.43 | 402.519 | .682 | .965 |
| PA6_Music | 95.31 | 405.895 | .695 | .965 |
| PA8_Music | 95.47 | 403.444 | .695 | .965 |
| PA9_Music | 95.33 | 403.665 | .694 | .965 |

**Scale Statistics**

| Mean | Variance | Std. Deviation | N of Items |
|---|---|---|---|
| 101.32 | 445.456 | 21.106 | 17 |

# Reliability

# Scale: ALL VARIABLES

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 177 | 100.0 |
| | Excluded[a] | 0 | .0 |
| | Total | 177 | 100.0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .971 | 19 |

**Item Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| RC_NA1_Drunk | 2.62 | 1.735 | 177 |
| RC_NA2_Drunk | 2.77 | 1.751 | 177 |
| RC_NA3_Drunk | 2.81 | 1.792 | 177 |
| RC_NA5_Drunk | 2.43 | 1.647 | 177 |
| RC_NA6_Drunk | 2.39 | 1.610 | 177 |
| RC_NA7_Drunk | 2.63 | 1.737 | 177 |
| RC_NA8_Drunk | 2.77 | 1.680 | 177 |
| RC_NA9_Drunk | 2.56 | 1.602 | 177 |
| RC_NA10_Drunk | 3.10 | 1.885 | 177 |
| PA1_Drunk | 2.47 | 1.736 | 177 |
| PA2_Drunk | 2.54 | 1.803 | 177 |
| PA3_Drunk | 2.29 | 1.653 | 177 |
| PA4_Drunk | 2.42 | 1.767 | 177 |
| PA5_Drunk | 2.47 | 1.732 | 177 |
| PA6_Drunk | 2.82 | 1.783 | 177 |
| PA7_Drunk | 2.60 | 1.775 | 177 |
| PA8_Drunk | 2.37 | 1.711 | 177 |
| PA9_Drunk | 2.56 | 1.780 | 177 |
| PA1_Drunk | 2.57 | 1.767 | 177 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|
| RC_NA1_Drunk | 46.60 | 644.115 | .789 | .970 |
| RC_NA2_Drunk | 46.45 | 644.885 | .772 | .970 |
| RC_NA3_Drunk | 46.41 | 645.971 | .740 | .970 |
| RC_NA5_Drunk | 46.79 | 649.587 | .766 | .970 |

| | | | | |
|---|---|---|---|---|
| RC_NA6_Drunk | 46.83 | 651.596 | .759 | .970 |
| RC_NA7_Drunk | 46.59 | 648.369 | .737 | .970 |
| RC_NA8_Drunk | 46.45 | 651.237 | .729 | .970 |
| RC_NA9_Drunk | 46.66 | 651.364 | .766 | .970 |
| RC_NA10_Drunk | 46.12 | 644.053 | .721 | .971 |
| PA1_Drunk | 46.75 | 641.759 | .817 | .969 |
| PA2_Drunk | 46.68 | 643.924 | .759 | .970 |
| PA3_Drunk | 46.93 | 643.489 | .839 | .969 |
| PA4_Drunk | 46.80 | 638.674 | .838 | .969 |
| PA5_Drunk | 46.75 | 645.054 | .779 | .970 |
| PA6_Drunk | 46.40 | 638.502 | .831 | .969 |
| PA7_Drunk | 46.62 | 635.954 | .866 | .969 |
| PA8_Drunk | 46.85 | 642.796 | .817 | .969 |
| PA9_Drunk | 46.66 | 637.750 | .842 | .969 |
| PA1_Drunk | 46.65 | 640.024 | .821 | .969 |

**Scale Statistics**

| Mean | Variance | Std. Deviation | N of Items |
|---|---|---|---|
| 49.22 | 716.582 | 26.769 | 19 |

## N.2 Probability x Severity Items

## Reliability

## Scale: ALL VARIABLES

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 177 | 100.0 |
| | Excluded[a] | 0 | .0 |
| | Total | 177 | 100.0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| .993 | .993 | 11 |

**Item Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| PxSRisky_Calc_Total | 1.384180790960452 | .731109470625300 | 177 |
| PXSCatCalc_Total | 1.333898305084746 | .730879802056350 | 177 |
| PXSDisCalc_Total | 1.331638418079096 | .730437387875630 | 177 |
| PXSDesCalc_Total | 1.337853107344633 | .718570171894375 | 177 |
| PXSTragicCalc_Total | 1.312994350282486 | .713904568498091 | 177 |
| PXSSeveCalc_Total | 1.342937853107344 | .758039008337483 | 177 |
| PXSDreadCalc_Total | 1.316949152542372 | .718541580621236 | 177 |
| PXSAwfCalc_Total | 1.348587570621469 | .729890040335526 | 177 |
| PXSBadCalc_Total | 1.368926553672316 | .714695962237526 | 177 |
| PXSUnpleasCalc_Total | 1.355367231638418 | .704842830360813 | 177 |
| PXSDissapCalc_Total | 1.432768361581920 | .794833971738556 | 177 |

**Inter-Item Correlation Matrix**

| | PxSRisky_Calc_Total | PXSCatCalc_Total | PXSDisCalc_Total | PXSDesCalc_Total | PXSTragicCalc_Total | PXSSeveCalc_Total | PXSDreadCalc_Total | PXSAwfCalc_Total | PXSBadCalc_Total | PXSUnpleasCalc_Total | PXSDissapCalc_Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PxSRisky_Calc_Total | 1.000 | .914 | .897 | .909 | .903 | .899 | .866 | .897 | .887 | .905 | .848 |
| PXSCatCalc_Total | .914 | 1.000 | .980 | .977 | .977 | .972 | .944 | .960 | .945 | .951 | .868 |
| PXSDisCalc_Total | .897 | .980 | 1.000 | .971 | .976 | .946 | .970 | .966 | .947 | .963 | .858 |
| PXSDesCalc_Total | .909 | .977 | .971 | 1.000 | .966 | .953 | .944 | .957 | .958 | .958 | .887 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PXSTragicCalc_Total | .903 | .977 | .976 | .966 | 1.000 | .973 | .939 | .952 | .938 | .942 | .867 |
| PXSSeveCalc_Total | .899 | .972 | .946 | .953 | .973 | 1.000 | .900 | .951 | .929 | .925 | .895 |
| PXSDreadCalc_Total | .866 | .944 | .970 | .944 | .939 | .900 | 1.000 | .952 | .938 | .955 | .827 |
| PXSAwfCalc_Total | .897 | .960 | .966 | .957 | .952 | .951 | .952 | 1.000 | .947 | .977 | .892 |
| PXSBadCalc_Total | .887 | .945 | .947 | .958 | .938 | .929 | .938 | .947 | 1.000 | .957 | .901 |
| PXSUnpleasCalc_Total | .905 | .951 | .963 | .958 | .942 | .925 | .955 | .977 | .957 | 1.000 | .903 |
| PXSDissapCalc_Total | .848 | .868 | .858 | .887 | .867 | .895 | .827 | .892 | .901 | .903 | 1.000 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|---|
| PxSRisky_Calc_Total | 13.481920903954800 | 50.509 | .918 | . | .993 |
| PXSCatCalc_Total | 13.532203389830505 | 49.911 | .982 | . | .992 |
| PXSDisCalc_Total | 13.534463276836155 | 49.935 | .980 | . | .992 |
| PXSDesCalc_Total | 13.528248587570620 | 50.090 | .981 | . | .992 |
| PXSTragicCalc_Total | 13.553107344632766 | 50.205 | .975 | . | .992 |
| PXSSeveCalc_Total | 13.523163841807907 | 49.691 | .965 | . | .992 |
| PXSDreadCalc_Total | 13.549152542372878 | 50.356 | .952 | . | .993 |
| PXSAwfCalc_Total | 13.517514124293783 | 49.964 | .977 | . | .992 |
| PXSBadCalc_Total | 13.497175141242936 | 50.282 | .966 | . | .992 |
| PXSUnpleasCalc_Total | 13.510734463276833 | 50.329 | .976 | . | .992 |
| PXSDissapCalc_Total | 13.433333333333330 | 49.871 | .898 | . | .994 |

**Scale Statistics**

| Mean | Variance | Std. Deviation | N of Items |
|---|---|---|---|
| 14.866101694915251 | 60.584 | 7.783540548289848 | 11 |

# Reliability

# Scale: ALL VARIABLES

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 177 | 100.0 |
| | Excluded[a] | 0 | .0 |
| | Total | 177 | 100.0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| .989 | .989 | 11 |

**Item Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| PXSRiskyEcig_Total | 3.445762711864407 | 1.118438750593419 | 177 |
| PXSCatEcig_Total | 2.999435028248588 | 1.193376472981621 | 177 |
| PXSDisEcig_Total | 2.997740112994351 | 1.195633856345086 | 177 |
| PXSDesEcig_Total | 3.122033898305084 | 1.162051643246400 | 177 |
| PXSTragicEcig_Total | 3.035593220338983 | 1.165765849306081 | 177 |
| PXSSeveEcig_Total | 3.095480225988699 | 1.126933651805949 | 177 |
| PXSDreadEcig_Total | 3.031073446327683 | 1.190442755785538 | 177 |
| PXSAwfEcig_Total | 3.116949152542371 | 1.150368400829548 | 177 |
| PXSBadEcig_Total | 3.202259887005650 | 1.143805192521271 | 177 |

| | | | |
|---|---|---|---|
| PXSUnpleasEcig_Total | 3.254802259887006 | 1.114058964081081 | 177 |
| PXSDissapEcig_Total | 3.232203389830508 | 1.200393971023792 | 177 |

**Inter-Item Correlation Matrix**

| | PXSRiskyEcig_Total | PXSCatEcig_Total | PXSDisEcig_Total | PXSDesEcig_Total | PXSTragicEcig_Total | PXSSeveEcig_Total | PXSDreadEcig_Total | PXSAwfEcig_Total | PXSBadEcig_Total | PXSUnpleasEcig_Total | PXSDissapEcig_Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PXSRiskyEcig_Total | 1.000 | .835 | .821 | .869 | .832 | .840 | .819 | .845 | .857 | .894 | .850 |
| PXSCatEcig_Total | .835 | 1.000 | .922 | .905 | .935 | .896 | .898 | .854 | .856 | .850 | .803 |
| PXSDisEcig_Total | .821 | .922 | 1.000 | .947 | .945 | .920 | .938 | .901 | .881 | .883 | .830 |
| PXSDesEcig_Total | .869 | .905 | .947 | 1.000 | .940 | .927 | .938 | .918 | .922 | .918 | .867 |
| PXSTragicEcig_Total | .832 | .935 | .945 | .940 | 1.000 | .952 | .947 | .909 | .919 | .895 | .825 |
| PXSSeveEcig_Total | .840 | .896 | .920 | .927 | .952 | 1.000 | .941 | .936 | .935 | .929 | .860 |
| PXSDreadEcig_Total | .819 | .898 | .938 | .938 | .947 | .941 | 1.000 | .930 | .939 | .922 | .856 |
| PXSAwfEcig_Total | .845 | .854 | .901 | .918 | .909 | .936 | .930 | 1.000 | .955 | .931 | .870 |
| PXSBadEcig_Total | .857 | .856 | .881 | .922 | .919 | .935 | .939 | .955 | 1.000 | .951 | .870 |
| PXSUnpleasEcig_Total | .894 | .850 | .883 | .918 | .895 | .929 | .922 | .931 | .951 | 1.000 | .903 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PXSDissapEcig_Total | .850 | .803 | .830 | .867 | .825 | .860 | .856 | .870 | .870 | .903 | 1.000 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|---|
| PXSRiskyEcig_Total | 31.087570621468924 | 124.021 | .884 | .849 | .990 |
| PXSCatEcig_Total | 31.533898305084744 | 121.701 | .918 | .901 | .989 |
| PXSDisEcig_Total | 31.535593220338980 | 121.000 | .945 | .942 | .988 |
| PXSDesEcig_Total | 31.411299435028248 | 121.274 | .964 | .941 | .988 |
| PXSTragicEcig_Total | 31.497740112994350 | 121.335 | .958 | .958 | .988 |
| PXSSeveEcig_Total | 31.437853107344633 | 122.071 | .962 | .944 | .988 |
| PXSDreadEcig_Total | 31.502259887005650 | 120.737 | .961 | .946 | .988 |
| PXSAwfEcig_Total | 31.416384180790960 | 121.809 | .952 | .935 | .988 |
| PXSBadEcig_Total | 31.331073446327682 | 121.855 | .956 | .955 | .988 |
| PXSUnpleasEcig_Total | 31.278531073446324 | 122.516 | .955 | .945 | .988 |
| PXSDissapEcig_Total | 31.301129943502822 | 122.188 | .892 | .836 | .989 |

**Scale Statistics**

| Mean | Variance | Std. Deviation | N of Items |
|---|---|---|---|
| 34.533333333333330 | 147.299 | 12.136682126112696 | 11 |

## Reliability

## Scale: ALL VARIABLES

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 177 | 100.0 |
| | Excluded[a] | 0 | .0 |
| | Total | 177 | 100.0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| .987 | .987 | 11 |

**Item Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| PXSRiskymusic_Total | 1.473446327683615 | .775348886792677 | 177 |
| PXSCatmusic_Total | 1.361016949152542 | .728950899912897 | 177 |
| PXSDismusic_Total | 1.337853107344632 | .678971415337497 | 177 |
| PXSDesmusic_Total | 1.371186440677965 | .716141217534270 | 177 |
| PXSTragicmusic_Total | 1.344632768361582 | .687788786991358 | 177 |
| PXSSevemusic_Total | 1.353107344632768 | .699191054331443 | 177 |
| PXSDreadmusic_Total | 1.345197740112994 | .674614444091351 | 177 |
| PXSAwfmusic_Total | 1.343502824858756 | .662703777616346 | 177 |
| PXSBadmusic_Total | 1.384180790960451 | .673507213865536 | 177 |
| PXSUnpleasmusic_Total | 1.448022598870056 | .713035316883220 | 177 |
| PXSDissapmusic_Total | 1.495480225988700 | .717224702415145 | 177 |

**Inter-Item Correlation Matrix**

| | PXSRiskymusic_Total | PXSCatmusic_Total | PXSDismusic_Total | PXSDesmusic_Total | PXSTragicmusic_Total | PXSSevemusic_Total | PXSDreadmusic_Total | PXSAwfmusic_Total | PXSBadmusic_Total | PXSUnpleasmusic_Total | PXSDissapmusic_Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PXSRiskymusic_Total | 1.000 | .886 | .914 | .888 | .903 | .839 | .811 | .805 | .819 | .765 | .711 |
| PXSCatmusic_Total | .886 | 1.000 | .949 | .906 | .933 | .919 | .896 | .891 | .858 | .843 | .748 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PXSDismusic_Total | .914 | .949 | 1.000 | .953 | .959 | .931 | .924 | .916 | .883 | .862 | .756 |
| PXSDesmusic_Total | .888 | .906 | .953 | 1.000 | .964 | .936 | .911 | .918 | .884 | .864 | .751 |
| PXSTragicmusic_Total | .903 | .933 | .959 | .964 | 1.000 | .932 | .909 | .910 | .876 | .854 | .741 |
| PXSSevemusic_Total | .839 | .919 | .931 | .936 | .932 | 1.000 | .914 | .931 | .903 | .868 | .761 |
| PXSDreadmusic_Total | .811 | .896 | .924 | .911 | .909 | .914 | 1.000 | .965 | .937 | .913 | .815 |
| PXSAwfmusic_Total | .805 | .891 | .916 | .918 | .910 | .931 | .965 | 1.000 | .965 | .938 | .821 |
| PXSBadmusic_Total | .819 | .858 | .883 | .884 | .876 | .903 | .937 | .965 | 1.000 | .914 | .833 |
| PXSUnpleasmusic_Total | .765 | .843 | .862 | .864 | .854 | .868 | .913 | .938 | .914 | 1.000 | .847 |
| PXSDissapmusic_Total | .711 | .748 | .756 | .751 | .741 | .761 | .815 | .821 | .833 | .847 | 1.000 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|---|
| PXSRiskymusic_Total | 13.784180790960447 | 43.348 | .881 | . | .987 |
| PXSCatmusic_Total | 13.896610169491519 | 43.407 | .937 | . | .985 |
| PXSDismusic_Total | 13.919774011299430 | 43.819 | .963 | . | .985 |
| PXSDesmusic_Total | 13.886440677966096 | 43.425 | .954 | . | .985 |
| PXSTragicmusic_Total | 13.912994350282480 | 43.774 | .955 | . | .985 |

| | | | | | |
|---|---|---|---|---|---|
| PXSSevemusic_Total | 13.904519774011293 | 43.684 | .949 | . | .985 |
| PXSDreadmusic_Total | 13.912429378531067 | 43.942 | .955 | . | .985 |
| PXSAwfmusic_Total | 13.914124293785305 | 44.034 | .963 | . | .985 |
| PXSBadmusic_Total | 13.873446327683610 | 44.070 | .941 | . | .985 |
| PXSUnpleasmusic_Total | 13.809604519774005 | 43.781 | .917 | . | .986 |
| PXSDissapmusic_Total | 13.762146892655360 | 44.610 | .816 | . | .988 |

**Scale Statistics**

| Mean | Variance | Std. Deviation | N of Items |
|---|---|---|---|
| 15.257627118644061 | 52.940 | 7.275961434201526 | 11 |

# Reliability

# Scale: ALL VARIABLES

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 177 | 100.0 |
| | Excluded[a] | 0 | .0 |
| | Total | 177 | 100.0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| .980 | .980 | 11 |

**Item Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| PXSRiskyDrunk_Total | 3.971186440677966 | 1.071434496278286 | 177 |
| PXSCatDrunk_Total | 3.606214689265537 | 1.084716039092636 | 177 |
| PXSDisDrunk_Total | 3.645197740112995 | 1.088468529212384 | 177 |
| PXSDesDrunk_Total | 3.691525423728813 | 1.096423131180937 | 177 |

| | | | |
|---|---|---|---|
| PXSTragicDrunk_Total | 3.471186440677966 | 1.108241468517745 | 177 |
| PXSSeveDrunk_Total | 3.591525423728812 | 1.075072112104565 | 177 |
| PXSDreadDrunk_Total | 3.668361581920903 | 1.101607360907953 | 177 |
| PXSAwfDrunk_Total | 3.651412429378532 | 1.094309004922158 | 177 |
| PXSBadDrunk_Total | 3.779096045197740 | 1.088557885062618 | 177 |
| PXSUnpleasDrunk_Total | 3.857062146892656 | 1.074110817025963 | 177 |
| PXSDissapDrunk_Total | 3.854802259887006 | 1.100254149563285 | 177 |

**Inter-Item Correlation Matrix**

| | PXSRiskyDrunk_Total | PXSCatDrunk_Total | PXSDisDrunk_Total | PXSDesDrunk_Total | PXSTragicDrunk_Total | PXSSeveDrunk_Total | PXSDreadDrunk_Total | PXSAwfDrunk_Total | PXSBadDrunk_Total | PXSUnpleasDrunk_Total | PXSDissapDrunk_Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PXSRiskyDrunk_Total | 1.000 | .774 | .683 | .639 | .590 | .615 | .678 | .680 | .668 | .777 | .685 |
| PXSCatDrunk_Total | .774 | 1.000 | .872 | .778 | .822 | .787 | .772 | .777 | .742 | .761 | .713 |
| PXSDisDrunk_Total | .683 | .872 | 1.000 | .888 | .897 | .853 | .869 | .878 | .806 | .804 | .779 |
| PXSDesDrunk_Total | .639 | .778 | .888 | 1.000 | .870 | .912 | .886 | .871 | .905 | .827 | .838 |
| PXSTragicDrunk_Total | .590 | .822 | .897 | .870 | 1.000 | .898 | .855 | .888 | .802 | .801 | .749 |
| PXSSeveDrunk_Total | .615 | .787 | .853 | .912 | .898 | 1.000 | .897 | .885 | .901 | .832 | .823 |
| PXSDreadDrunk_Total | .678 | .772 | .869 | .886 | .855 | .897 | 1.000 | .925 | .901 | .889 | .855 |
| PXSAwfDrunk_Total | .680 | .777 | .878 | .871 | .888 | .885 | .925 | 1.000 | .900 | .878 | .854 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PXSBadDrunk_Total | .668 | .742 | .806 | .905 | .802 | .901 | .901 | .900 | 1.000 | .887 | .908 |
| PXSUnpleasDrunk_Total | .777 | .761 | .804 | .827 | .801 | .832 | .889 | .878 | .887 | 1.000 | .853 |
| PXSDissapDrunk_Total | .685 | .713 | .779 | .838 | .749 | .823 | .855 | .854 | .908 | .853 | 1.000 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|---|
| PXSRiskyDrunk_Total | 36.816384180790960 | 102.616 | .731 | .758 | .982 |
| PXSCatDrunk_Total | 37.181355932203395 | 100.018 | .850 | .853 | .979 |
| PXSDisDrunk_Total | 37.142372881355930 | 98.682 | .914 | .909 | .977 |
| PXSDesDrunk_Total | 37.096045197740120 | 98.331 | .924 | .911 | .977 |
| PXSTragicDrunk_Total | 37.316384180790960 | 98.699 | .895 | .909 | .978 |
| PXSSeveDrunk_Total | 37.196045197740120 | 98.755 | .923 | .909 | .977 |
| PXSDreadDrunk_Total | 37.119209039548025 | 97.966 | .938 | .907 | .977 |
| PXSAwfDrunk_Total | 37.136158192090400 | 98.083 | .939 | .920 | .977 |
| PXSBadDrunk_Total | 37.008474576271190 | 98.462 | .925 | .936 | .977 |
| PXSUnpleasDrunk_Total | 36.930508474576270 | 99.000 | .911 | .884 | .978 |
| PXSDissapDrunk_Total | 36.932768361581920 | 99.119 | .881 | .844 | .978 |

**Scale Statistics**

| Mean | Variance | Std. Deviation | N of Items |
|---|---|---|---|
| 40.787570621468930 | 119.630 | 10.937568871307121 | 11 |

# APPENDIX Q. TEST-RETEST RELIABILITY OUTPUT

## Q.1 Affect Items

### *Q.1.1 Analysis Including Outliers*

## Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Affect Average_Calc | 6.111255975662752 | 1.326450966395602 | 177 |
| Affect Average_Calc_RET | 6.302325581395350 | 1.009921898199101 | 86 |

**Correlations**

| | | Affect Average_Calc | Affect Average_Calc_RET |
|---|---|---|---|
| Affect Average_Calc | Pearson Correlation | 1 | .664** |
| | Sig. (2-tailed) | | .000 |
| | Sum of Squares and Cross-products | 309.667 | 81.314 |
| | Covariance | 1.759 | .957 |
| | N | 177 | 86 |
| Affect Average_Calc_RET | Pearson Correlation | .664** | 1 |
| | Sig. (2-tailed) | .000 | |
| | Sum of Squares and Cross-products | 81.314 | 86.695 |
| | Covariance | .957 | 1.020 |
| | N | 86 | 86 |

**. Correlation is significant at the 0.01 level (2-tailed).

## Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Affect Average_Ecig | 3.270056497175142 | 1.504456069472203 | 177 |
| Affect Average_ReT_Ecig | 3.103012048192770 | 1.701368699333740 | 83 |

**Correlations**

| | | Affect Average_Ecig | Affect Average_ReT_Ecig |
|---|---|---|---|
| Affect Average_Ecig | Pearson Correlation | 1 | .929** |
| | Sig. (2-tailed) | | .000 |
| | Sum of Squares and Cross-products | 398.356 | 212.336 |
| | Covariance | 2.263 | 2.589 |
| | N | 177 | 83 |
| Affect Average_ReT_Ecig | Pearson Correlation | .929** | 1 |
| | Sig. (2-tailed) | .000 | |
| | Sum of Squares and Cross-products | 212.336 | 237.362 |
| | Covariance | 2.589 | 2.895 |
| | N | 83 | 83 |

**. Correlation is significant at the 0.01 level (2-tailed).

# Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Affect Average_Drunk | 2.562460765850598 | 1.409899572965685 | 177 |
| Affect Average_Drunk_Ret | 2.285322359396433 | 1.284906235663119 | 81 |

**Correlations**

| | | Affect Average_Drunk | Affect Average_Drunk_Ret |
|---|---|---|---|
| Affect Average_Drunk | Pearson Correlation | 1 | .592** |
| | Sig. (2-tailed) | | .000 |
| | Sum of Squares and Cross-products | 349.856 | 90.786 |
| | Covariance | 1.988 | 1.135 |
| | N | 177 | 81 |
| Affect Average_Drunk_Ret | Pearson Correlation | .592** | 1 |
| | Sig. (2-tailed) | .000 | |
| | Sum of Squares and Cross-products | 90.786 | 132.079 |
| | Covariance | 1.135 | 1.651 |
| | N | 81 | 81 |

**. Correlation is significant at the 0.01 level (2-tailed).

# Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Affect Average_Music | 5.959787304752411 | 1.241519537878488 | 177 |
| Affect Average_Music_Ret | 6.134550371872886 | 1.214399140674817 | 87 |

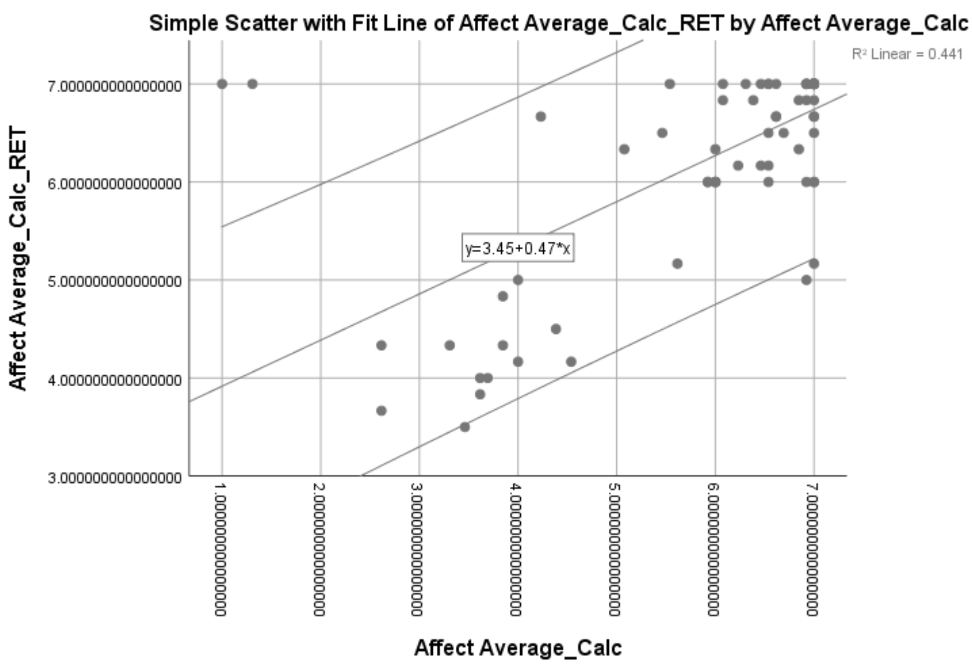
**Correlations**

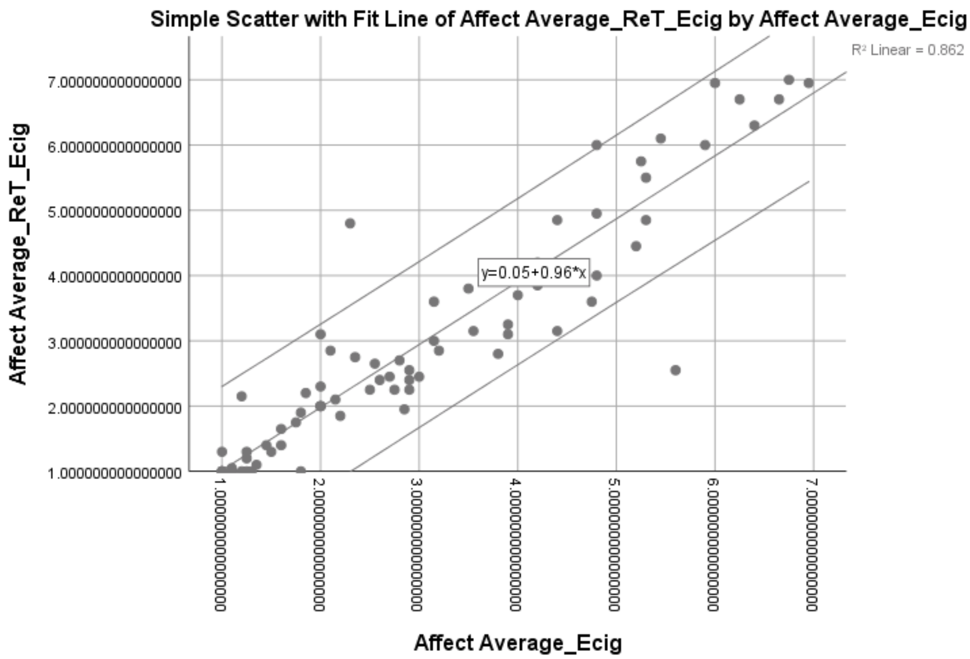
| | | Affect Average_Music | Affect Average_Music_Ret |
|---|---|---|---|
| Affect Average_Music | Pearson Correlation | 1 | .749** |
| | Sig. (2-tailed) | | .000 |
| | Sum of Squares and Cross-products | 271.281 | 95.660 |
| | Covariance | 1.541 | 1.112 |

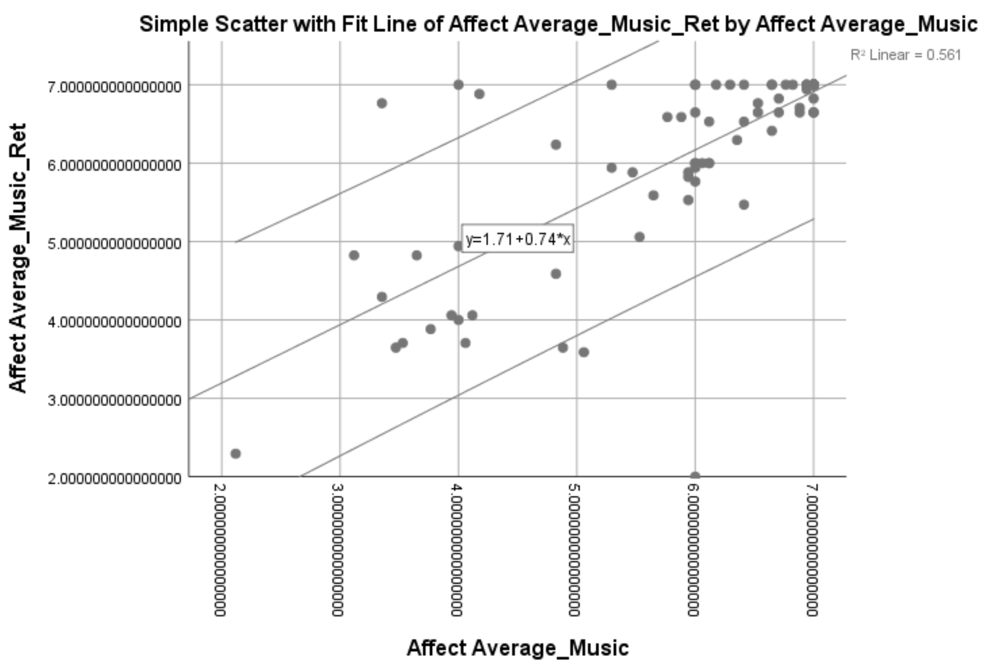
| | | | |
|---|---|---|---|
| | N | 177 | 87 |
| Affect Average_Music_Ret | Pearson Correlation | .749** | 1 |
| | Sig. (2-tailed) | .000 | |
| | Sum of Squares and Cross-products | 95.660 | 126.830 |
| | Covariance | 1.112 | 1.475 |
| | N | 87 | 87 |

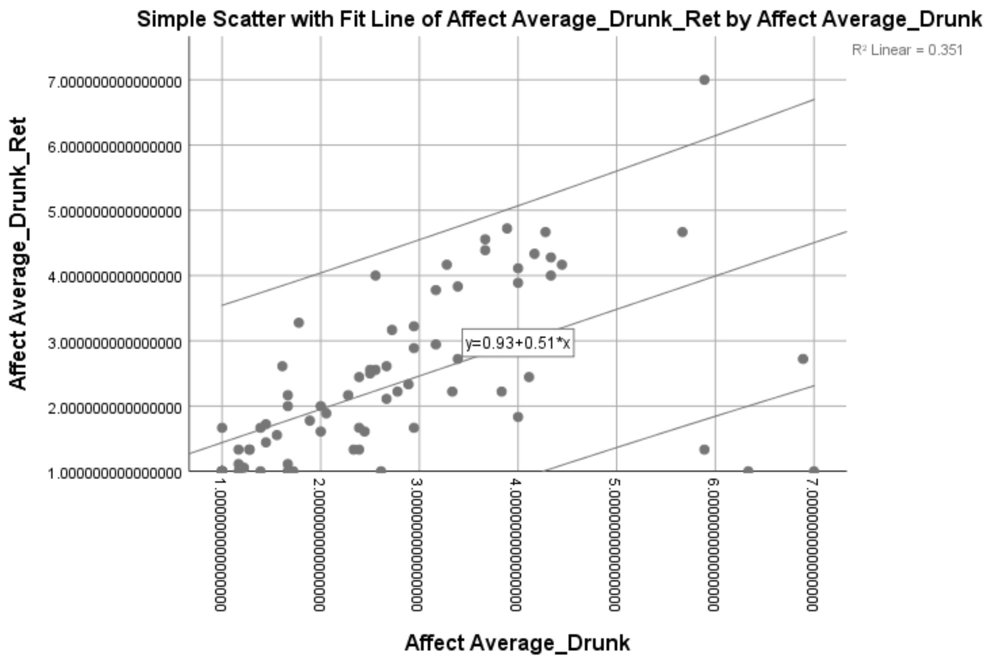
**. Correlation is significant at the 0.01 level (2-tailed).

### *Q.1.2 Scatterplots*




Simple Scatter with Fit Line of Affect Average_ReT_Ecig by Affect Average_Ecig
R² Linear = 0.862
y=0.05+0.96*x
Affect Average_ReT_Ecig
Affect Average_Ecig
1.000000000000000
2.000000000000000
3.000000000000000
4.000000000000000
5.000000000000000
6.000000000000000
7.000000000000000


Simple Scatter with Fit Line of Affect Average_Music_Ret by Affect Average_Music
R² Linear = 0.561
y=1.71+0.74*x
Affect Average_Music_Ret
Affect Average_Music
2.000000000000000
3.000000000000000
4.000000000000000
5.000000000000000
6.000000000000000
7.000000000000000




*Q.1.3 Analysis Excluding Outliers*

# Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Affect Average_Calc_CI99 | 6.167912087912086 | 1.222175854505872 | 175 |
| Affect Average_Calc_RET_CI99 | 6.285714285714287 | 1.016125482588848 | 84 |

**Correlations**

| | | Affect Average_Calc_CI99 | Affect Average_Calc_RET_CI99 |
|---|---|---|---|
| Affect Average_Calc_CI99 | Pearson Correlation | 1 | .860** |
| | Sig. (2-tailed) | | .000 |
| | Sum of Squares and Cross-products | 259.906 | 88.337 |

| | | | |
|---|---|---|---|
| | Covariance | 1.494 | 1.064 |
| | N | 175 | 84 |
| Affect Average_Calc_RET_CI99 | Pearson Correlation | .860** | 1 |
| | Sig. (2-tailed) | .000 | |
| | Sum of Squares and Cross-products | 88.337 | 85.698 |
| | Covariance | 1.064 | 1.033 |
| | N | 84 | 84 |

**. Correlation is significant at the 0.01 level (2-tailed).

# Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Affect Average_Ecig | 3.262285714285715 | 1.500911764493419 | 175 |
| Affect Average_ReT_Ecig | 3.088888888888889 | 1.710847743079435 | 81 |

**Correlations**

| | | Affect Average_Ecig | Affect Average_ReT_Ecig |
|---|---|---|---|
| Affect Average_Ecig | Pearson Correlation | 1 | .962** |
| | Sig. (2-tailed) | | .000 |
| | Sum of Squares and Cross-products | 391.976 | 215.129 |
| | Covariance | 2.253 | 2.689 |
| | N | 175 | 81 |
| Affect Average_ReT_Ecig | Pearson Correlation | .962** | 1 |
| | Sig. (2-tailed) | .000 | |
| | Sum of Squares and Cross-products | 215.129 | 234.160 |
| | Covariance | 2.689 | 2.927 |
| | N | 81 | 81 |

**. Correlation is significant at the 0.01 level (2-tailed).

## Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Affect Average_Music_CI99 | 5.985801217038540 | 1.227162416730211 | 174 |
| Affect Average_Music_Ret_CI99 | 6.165966386554621 | 1.143374326128894 | 84 |

**Correlations**

| | | Affect Average_Music_CI99 | Affect Average_Music_Ret_CI99 |
|---|---|---|---|
| Affect Average_Music_CI99 | Pearson Correlation | 1 | .876** |
| | Sig. (2-tailed) | | .000 |
| | Sum of Squares and Cross-products | 260.525 | 99.041 |
| | Covariance | 1.506 | 1.193 |
| | N | 174 | 84 |
| Affect Average_Music_Ret_CI99 | Pearson Correlation | .876** | 1 |
| | Sig. (2-tailed) | .000 | |
| | Sum of Squares and Cross-products | 99.041 | 108.506 |
| | Covariance | 1.193 | 1.307 |
| | N | 84 | 84 |

**. Correlation is significant at the 0.01 level (2-tailed).

## Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Affect Average_Drunk_IC99 | 2.496168582375480 | 1.325853917602528 | 174 |

| | | | |
|---|---|---|---|
| Affect Average_Drunk_Ret_CI99 | 2.257834757834758 | 1.175990856284863 | 78 |

**Correlations**

| | | Affect Average_Drunk_IC99 | Affect Average_Drunk_Ret_CI99 |
|---|---|---|---|
| Affect Average_Drunk_IC99 | Pearson Correlation | 1 | .718** |
| | Sig. (2-tailed) | | .000 |
| | Sum of Squares and Cross-products | 304.115 | 85.538 |
| | Covariance | 1.758 | 1.111 |
| | N | 174 | 78 |
| Affect Average_Drunk_Ret_CI99 | Pearson Correlation | .718** | 1 |
| | Sig. (2-tailed) | .000 | |
| | Sum of Squares and Cross-products | 85.538 | 106.487 |
| | Covariance | 1.111 | 1.383 |
| | N | 78 | 78 |

**. Correlation is significant at the 0.01 level (2-tailed).

## Q.2 Probability x Severity Items

### *Q.2.1 Analysis Including Outliers*

## Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| PxS_Calc_Total | 10.715254237288140 | 5.665259368590750 | 177 |
| PxS_RetCalc_Total | 11.246511627906976 | 5.458909558735283 | 86 |

**Correlations**

| | | PxS_Calc_Total | PxS_RetCalc_Total |
|---|---|---|---|
| PxS_Calc_Total | Pearson Correlation | 1 | .866** |
| | Sig. (2-tailed) | | .000 |
| | N | 177 | 86 |
| PxS_RetCalc_Total | Pearson Correlation | .866** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 86 | 86 |

**. Correlation is significant at the 0.01 level (2-tailed).

## Correlations

### Descriptive Statistics

| | Mean | Std. Deviation | N |
|---|---|---|---|
| PxS_Ecig_Total | 24.855932203389827 | 8.951027198286708 | 177 |
| PxS_RetEcig_Total | 24.724390243902445 | 10.156923819516380 | 82 |

### Correlations

| | | PxS_Ecig_Total | PxS_RetEcig_Total |
|---|---|---|---|
| PxS_Ecig_Total | Pearson Correlation | 1 | .912** |
| | Sig. (2-tailed) | | .000 |
| | N | 177 | 82 |
| PxS_RetEcig_Total | Pearson Correlation | .912** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 82 | 82 |

**. Correlation is significant at the 0.01 level (2-tailed).

## Correlations

### Descriptive Statistics

| | Mean | Std. Deviation | N |
|---|---|---|---|

| | | | |
|---|---|---|---|
| PxS_Music_Total | 12.288700564971753 | 5.984097012237905 | 177 |
| PxS_ReTMusic_Total | 11.490804597701148 | 6.359421360687569 | 87 |

**Correlations**

| | | PxS_Music_Total | PxS_ReTMusic_Total |
|---|---|---|---|
| PxS_Music_Total | Pearson Correlation | 1 | .482** |
| | Sig. (2-tailed) | | .000 |
| | N | 177 | 87 |
| PxS_ReTMusic_Total | Pearson Correlation | .482** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 87 | 87 |

**. Correlation is significant at the 0.01 level (2-tailed).

# Correlations

**Descriptive Statistics**

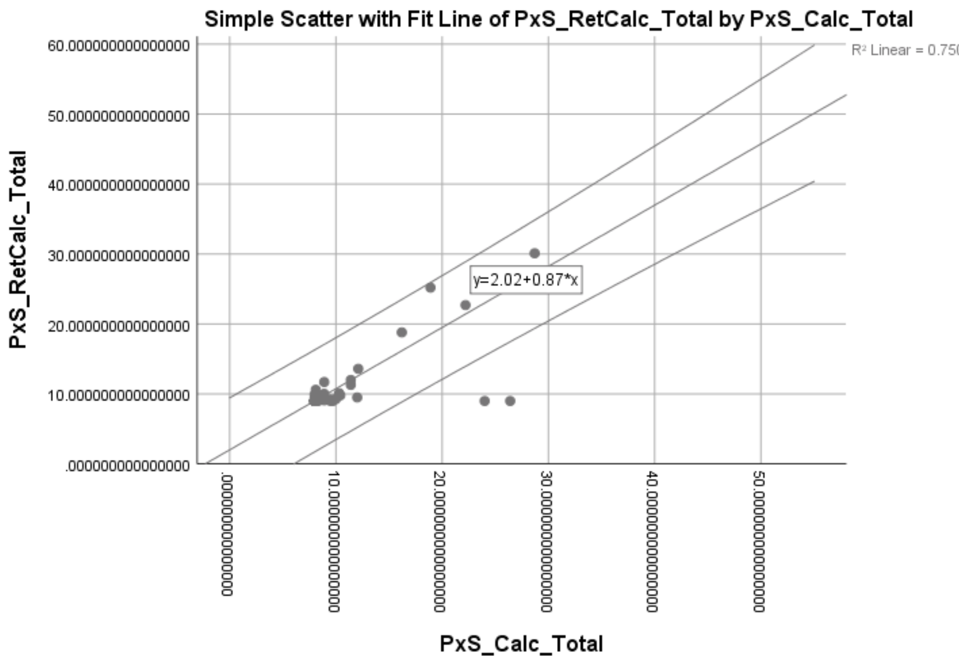
| | Mean | Std. Deviation | N |
|---|---|---|---|
| PxS_Drunk_Total | 36.816384180790955 | 10.129934960606208 | 177 |
| PxS_RetDrunk_Total | 38.051190476190470 | 11.679892040758064 | 84 |

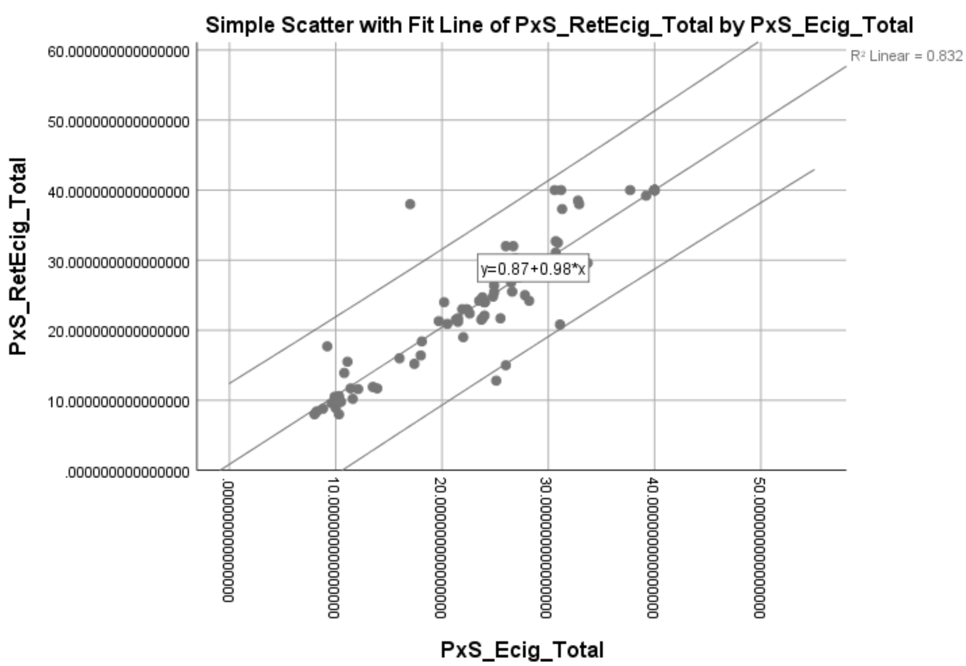
**Correlations**

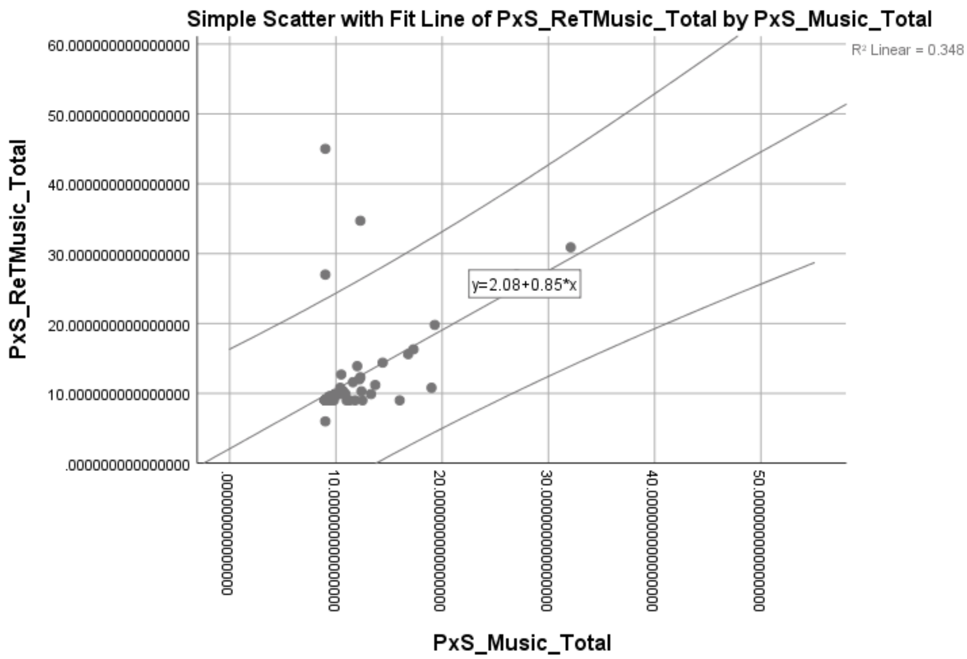
| | | PxS_Drunk_Total | PxS_RetDrunk_Total |
|---|---|---|---|
| PxS_Drunk_Total | Pearson Correlation | 1 | .728** |
| | Sig. (2-tailed) | | .000 |
| | N | 177 | 83 |
| PxS_RetDrunk_Total | Pearson Correlation | .728** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 83 | 84 |

**. Correlation is significant at the 0.01 level (2-tailed).

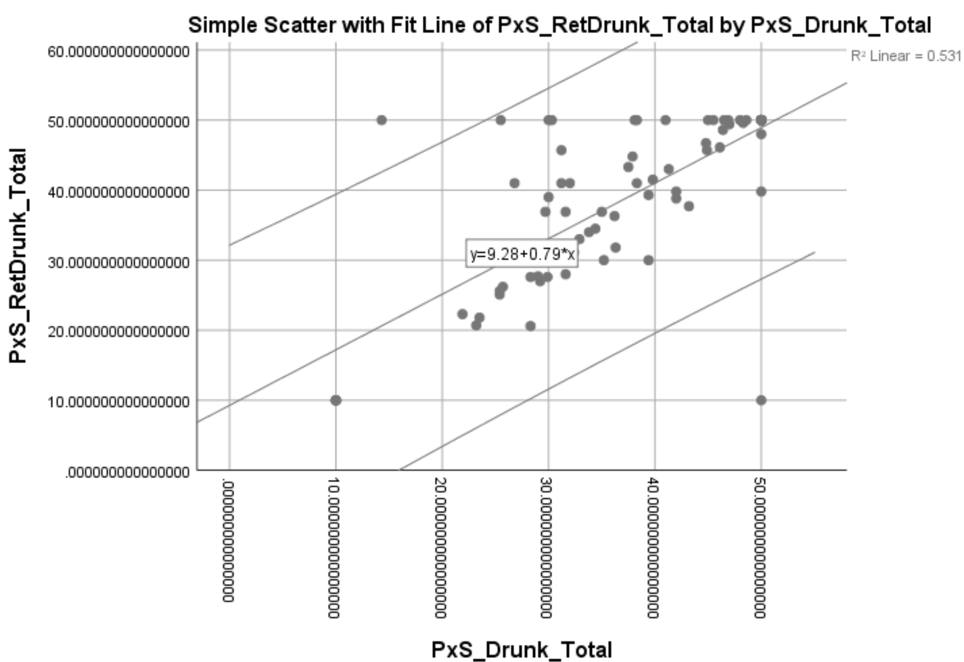
*Q.2.2 Scatterplots*





Simple Scatter with Fit Line of PxS_ReTMusic_Total by PxS_Music_Total
R² Linear = 0.348
y=2.08+0.85*x
PxS_ReTMusic_Total
PxS_Music_Total
60.000000000000000
50.000000000000000
40.000000000000000
30.000000000000000
20.000000000000000
10.000000000000000
.000000000000000
.000000000000000
10.000000000000000
20.000000000000000
30.000000000000000
40.000000000000000
50.000000000000000

Simple Scatter with Fit Line of PxS_RetDrunk_Total by PxS_Drunk_Total
R² Linear = 0.531
y=9.28+0.79*x
PxS_RetDrunk_Total
PxS_Drunk_Total
60.000000000000000
50.000000000000000
40.000000000000000
30.000000000000000
20.000000000000000
10.000000000000000
.000000000000000
.000000000000000
10.000000000000000
20.000000000000000
30.000000000000000
40.000000000000000
50.000000000000000

### *Q.2.3 Analysis Excluding Outliers*

## Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| PxS_Calc_Total | 10.549714285714290 | 5.477990174752040 | 175 |
| PxS_RetCalc_Total | 11.299999999999999 | 5.513007619444052 | 84 |

**Correlations**

| | | PxS_Calc_Total | PxS_RetCalc_Total |
|---|---|---|---|
| PxS_Calc_Total | Pearson Correlation | 1 | .987** |
| | Sig. (2-tailed) | | .000 |
| | Sum of Squares and Cross-products | 5221.457 | 2240.160 |
| | Covariance | 30.008 | 26.990 |
| | N | 175 | 84 |
| PxS_RetCalc_Total | Pearson Correlation | .987** | 1 |
| | Sig. (2-tailed) | .000 | |
| | Sum of Squares and Cross-products | 2240.160 | 2522.640 |
| | Covariance | 26.990 | 30.393 |
| | N | 84 | 84 |

**. Correlation is significant at the 0.01 level (2-tailed).

## Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| PxS_Ecig_Total | 24.899428571428565 | 8.982476536516200 | 175 |

| | | | |
|---|---|---|---|
| PxS_RetEcig_Total | 24.707500000000003 | 10.086810224562027 | 80 |

**Correlations**

| | | PxS_Ecig_Total | PxS_RetEcig_Total |
|---|---|---|---|
| PxS_Ecig_Total | Pearson Correlation | 1 | .948** |
| | Sig. (2-tailed) | | .000 |
| | Sum of Squares and Cross-products | 14039.170 | 7211.177 |
| | Covariance | 80.685 | 91.281 |
| | N | 175 | 80 |
| PxS_RetEcig_Total | Pearson Correlation | .948** | 1 |
| | Sig. (2-tailed) | .000 | |
| | Sum of Squares and Cross-products | 7211.177 | 8037.755 |
| | Covariance | 91.281 | 101.744 |
| | N | 80 | 80 |

**. Correlation is significant at the 0.01 level (2-tailed).

## Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| PxS_Music_Total | 12.326436781609196 | 6.025273548489783 | 174 |
| PxS_ReTMusic_Total | 10.650602409638553 | 4.292886160137088 | 83 |

**Correlations**

| | | PxS_Music_Total | PxS_ReTMusic_Total |
|---|---|---|---|
| PxS_Music_Total | Pearson Correlation | 1 | .946** |
| | Sig. (2-tailed) | | .000 |

| | | | |
|---|---|---|---|
| | Sum of Squares and Cross-products | 6280.578 | 1500.968 |
| | Covariance | 36.304 | 18.304 |
| | N | 174 | 83 |
| PxS_ReTMusic_Total | Pearson Correlation | .946** | 1 |
| | Sig. (2-tailed) | .000 | |
| | Sum of Squares and Cross-products | 1500.968 | 1511.167 |
| | Covariance | 18.304 | 18.429 |
| | N | 83 | 83 |

**. Correlation is significant at the 0.01 level (2-tailed).

# Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| PxS_Drunk_Total | 36.869714285714280 | 9.993977924004255 | 175 |
| PxS_RetDrunk_Total | 38.247560975609744 | 11.325729754481369 | 82 |

**Correlations**

| | | PxS_Drunk_Total | PxS_RetDrunk_Total |
|---|---|---|---|
| PxS_Drunk_Total | Pearson Correlation | 1 | .857** |
| | Sig. (2-tailed) | | .000 |
| | Sum of Squares and Cross-products | 17379.049 | 8175.215 |
| | Covariance | 99.880 | 102.190 |
| | N | 175 | 81 |
| PxS_RetDrunk_Total | Pearson Correlation | .857** | 1 |
| | Sig. (2-tailed) | .000 | |
| | Sum of Squares and Cross-products | 8175.215 | 10390.045 |
| | Covariance | 102.190 | 128.272 |

| | | |
|---|---|---|
| N | 81 | 82 |

**. Correlation is significant at the 0.01 level (2-tailed).

# APPENDIX R. CONSTRUCT VALIDITY CORRELATION OUTPUT

## R.1 Affect Items

## Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Affect Average_Ecig | 3.270056497175142 | 1.504456069472203 | 177 |
| Number of Consequences_Ecig | 3.53 | 1.742 | 172 |
| Wilson_Ecig_A | 3.123163841807910 | 1.312862565179156 | 177 |
| Wilson_Ecig_E | 2.538606403013180 | .623546646683375 | 177 |
| Wilson_Ecig_S | 3.303201506591337 | 1.301842534659328 | 177 |
| Wilson_Ecig_Sus | 3.601129943502825 | 1.145246534622219 | 177 |
| PANAS_Ecig_PA | 14.53 | 11.376 | 177 |
| PANAS_Ecig_NA | 19.32 | 13.841 | 177 |
| Trust_Ecig | 2.349475383373688 | 1.391472009950336 | 177 |
| Distrust_Ecig | 4.524293785310731 | 1.823809600439240 | 177 |

**Correlations**

| | | Affect Average_Ecig | Number of Consequences_Ecig | Wilson_Ecig_A | Wilson_Ecig_E | Wilson_Ecig_S | Wilson_Ecig_Sus | PANAS_Ecig_PA | PANAS_Ecig_NA | Trust_Ecig | Distrust_Ecig |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Affect Average_Ecig | Pearson Correlation | 1 | -.187* | -.778** | .259** | -.719** | -.775** | .318** | -.449** | .545** | -.670** |
| | Sig. (2-tailed) | | .014 | .000 | .001 | .000 | .000 | .000 | .000 | .000 | .000 |
| | N | 177 | 172 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Consequences_Ecig | Pearson Correlation | -.187* | 1 | .087 | -.193* | .107 | .152* | -.160* | .006 | -.210** | .042 |
| | Sig. (2-tailed) | .014 | | .257 | .011 | .162 | .047 | .036 | .938 | .006 | .582 |
| | N | 172 | 172 | 172 | 172 | 172 | 172 | 172 | 172 | 172 | 172 |
| Wilson_Ecig_A | Pearson Correlation | -.778** | .087 | 1 | -.056 | .810** | .755** | -.140 | .503** | -.318** | .633** |
| | Sig. (2-tailed) | .000 | .257 | | .462 | .000 | .000 | .063 | .000 | .000 | .000 |
| | N | 177 | 172 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_Ecig_E | Pearson Correlation | .259** | -.193* | -.056 | 1 | -.013 | -.087 | .518** | .205** | .668** | -.099 |
| | Sig. (2-tailed) | .001 | .011 | .462 | | .868 | .248 | .000 | .006 | .000 | .191 |
| | N | 177 | 172 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_Ecig_S | Pearson Correlation | -.719** | .107 | .810** | -.013 | 1 | .871** | -.114 | .493** | -.310** | .657** |
| | Sig. (2-tailed) | .000 | .162 | .000 | .868 | | .000 | .131 | .000 | .000 | .000 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | 177 | 172 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_Ecig_Sus | Pearson Correlation | -.775** | .152* | .755** | -.087 | .871** | 1 | -.132 | .472** | -.407** | .676** |
| | Sig. (2-tailed) | .000 | .047 | .000 | .248 | .000 | | .079 | .000 | .000 | .000 |
| | N | 177 | 172 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| PANAS_Ecig_PA | Pearson Correlation | .318** | -.160* | -.140 | .518** | -.114 | -.132 | 1 | .114 | .524** | -.116 |
| | Sig. (2-tailed) | .000 | .036 | .063 | .000 | .131 | .079 | | .131 | .000 | .125 |
| | N | 177 | 172 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| PANAS_Ecig_NA | Pearson Correlation | -.449** | .006 | .503** | .205** | .493** | .472** | .114 | 1 | .062 | .469** |
| | Sig. (2-tailed) | .000 | .938 | .000 | .006 | .000 | .000 | .131 | | .416 | .000 |
| | N | 177 | 172 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Trust_Ecig | Pearson Correlation | .545** | -.210** | -.318** | .668** | -.310** | -.407** | .524** | .062 | 1 | -.296** |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sig. (2-tailed) | .000 | .006 | .000 | .000 | .000 | .000 | .000 | .416 | | .000 |
| | N | 177 | 172 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Distrust_Ecig | Pearson Correlation | -.670** | .042 | .633** | -.099 | .657** | .676** | -.116 | .469** | -.296** | 1 |
| | Sig. (2-tailed) | .000 | .582 | .000 | .191 | .000 | .000 | .125 | .000 | .000 | |
| | N | 177 | 172 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

## Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Affect Average_Calc | 6.111255975662752 | 1.326450966395602 | 177 |
| Number of Consequences_Calc | 1.97 | 1.290 | 165 |
| Wilson_Calc_A | 1.288135593220339 | .747363109789113 | 177 |
| Wilson_Calc_E | 3.308851224105461 | .679815964837581 | 177 |
| Wilson_Calc_S | 1.333333333333333 | .832575412909738 | 177 |
| Wilson_Calc_Sus | 1.378531073446328 | .823098421704868 | 177 |
| PANAS_Calc_PA | 20.20 | 13.328 | 177 |
| PANAS_Calc_NA | 6.35 | 10.622 | 177 |
| Trust_Calc | 5.790153349475381 | 1.005670327683470 | 177 |
| Distrust_Calc | 1.516384180790960 | 1.227438403091862 | 177 |

**Correlations**

| | | Affect Average_Calc | Number of Consequences_Calc | Wilson_Calc_A | Wilson_Calc_E | Wilson_Calc_S | Wilson_Calc_Sus | PANAS_Calc_PA | PANAS_Calc_NA | Trust_Calc | Distrust_Calc |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Affect Average_Calc | Pearson Correlation | 1 | .088 | -.714** | -.055 | -.709** | -.701** | -.292** | -.693** | .289** | -.739** |
| | Sig. (2-tailed) | | .263 | .000 | .467 | .000 | .000 | .000 | .000 | .000 | .000 |
| | N | 177 | 165 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Number of Consequences_Calc | Pearson Correlation | .088 | 1 | -.139 | .112 | -.131 | -.129 | .019 | -.104 | -.060 | -.135 |
| | Sig. (2-tailed) | .263 | | .076 | .153 | .094 | .100 | .806 | .183 | .442 | .084 |
| | N | 165 | 165 | 165 | 165 | 165 | 165 | 165 | 165 | 165 | 165 |
| Wilson_Calc_A | Pearson Correlation | -.714** | -.139 | 1 | .100 | .923** | .937** | .361** | .881** | -.291** | .934** |
| | Sig. (2-tailed) | .000 | .076 | | .183 | .000 | .000 | .000 | .000 | .000 | .000 |
| | N | 177 | 165 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_Calc_E | Pearson Correlation | -.055 | .112 | .100 | 1 | .068 | .084 | .295** | .026 | .131 | .031 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sig. (2-tailed) | .467 | .153 | .183 | | .368 | .264 | .000 | .728 | .081 | .685 |
| | N | 177 | 165 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_Calc_S | Pearson Correlation | -.709** | -.131 | .923** | .068 | 1 | .903** | .361** | .874** | -.281** | .926** |
| | Sig. (2-tailed) | .000 | .094 | .000 | .368 | | .000 | .000 | .000 | .000 | .000 |
| | N | 177 | 165 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_Calc_Sus | Pearson Correlation | -.701** | -.129 | .937** | .084 | .903** | 1 | .338** | .857** | -.265** | .899** |
| | Sig. (2-tailed) | .000 | .100 | .000 | .264 | .000 | | .000 | .000 | .000 | .000 |
| | N | 177 | 165 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| PANAS_Calc_PA | Pearson Correlation | -.292** | .019 | .361** | .295** | .361** | .338** | 1 | .371** | -.012 | .375** |
| | Sig. (2-tailed) | .000 | .806 | .000 | .000 | .000 | .000 | | .000 | .875 | .000 |
| | N | 177 | 165 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PANAS_Calc_NA | Pearson Correlation | -.693** | -.104 | .881** | .026 | .874** | .857** | .371** | 1 | -.253** | .886** |
| | Sig. (2-tailed) | .000 | .183 | .000 | .728 | .000 | .000 | .000 | | .001 | .000 |
| | N | 177 | 165 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Trust_Calc | Pearson Correlation | .289** | -.060 | -.291** | .131 | -.281** | -.265** | -.012 | -.253** | 1 | -.275** |
| | Sig. (2-tailed) | .000 | .442 | .000 | .081 | .000 | .000 | .875 | .001 | | .000 |
| | N | 177 | 165 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Distrust_Calc | Pearson Correlation | -.739** | -.135 | .934** | .031 | .926** | .899** | .375** | .886** | -.275** | 1 |
| | Sig. (2-tailed) | .000 | .084 | .000 | .685 | .000 | .000 | .000 | .000 | .000 | |
| | N | 177 | 165 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |

**. Correlation is significant at the 0.01 level (2-tailed).

# Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Affect Average_Music | 5.959787304752411 | 1.241519537878488 | 177 |
| Number of Consequences_Music | 2.46 | 1.637 | 164 |

| | | | |
|---|---|---|---|
| Wilson_music_A | 1.352542372881356 | .794302709972298 | 177 |
| Wilson_music_E | 3.576271186440677 | .663335927191259 | 177 |
| Wilson_music_S | 1.433145009416196 | .837538610410619 | 177 |
| Wilson_music_Sus | 1.419209039548023 | .852718544586348 | 177 |
| PANAS_music_PA | 29.77 | 13.108 | 177 |
| PANAS_music_NA | 6.49 | 11.147 | 177 |

**Correlations**

| | | Affect Average_Music | Number of Consequences_Music | Wilson_music_A | Wilson_music_E | Wilson_music_S | Wilson_music_Sus | PANAS_music_PA | PANAS_music_NA |
|---|---|---|---|---|---|---|---|---|---|
| Affect Average_Music | Pearson Correlation | 1 | -.148 | -.646** | .091 | -.590** | -.602** | .061 | -.587** |
| | Sig. (2-tailed) | | .059 | .000 | .227 | .000 | .000 | .418 | .000 |
| | N | 177 | 164 | 177 | 177 | 177 | 177 | 177 | 177 |
| Number of Consequences_Music | Pearson Correlation | -.148 | 1 | .002 | .140 | -.018 | .044 | -.025 | -.090 |
| | Sig. (2-tailed) | .059 | | .984 | .074 | .823 | .573 | .748 | .254 |
| | N | 164 | 164 | 164 | 164 | 164 | 164 | 164 | 164 |
| Wilson_music_A | Pearson Correlation | -.646** | .002 | 1 | -.056 | .890** | .904** | -.020 | .874** |
| | Sig. (2-tailed) | .000 | .984 | | .462 | .000 | .000 | .792 | .000 |
| | N | 177 | 164 | 177 | 177 | 177 | 177 | 177 | 177 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Wilson_music_E | Pearson Correlation | .091 | .140 | -.056 | 1 | .061 | -.024 | .268** | .018 |
| | Sig. (2-tailed) | .227 | .074 | .462 | | .423 | .747 | .000 | .815 |
| | N | 177 | 164 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_music_S | Pearson Correlation | -.590** | -.018 | .890** | .061 | 1 | .880** | .046 | .838** |
| | Sig. (2-tailed) | .000 | .823 | .000 | .423 | | .000 | .541 | .000 |
| | N | 177 | 164 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_music_Sus | Pearson Correlation | -.602** | .044 | .904** | -.024 | .880** | 1 | -.012 | .833** |
| | Sig. (2-tailed) | .000 | .573 | .000 | .747 | .000 | | .873 | .000 |
| | N | 177 | 164 | 177 | 177 | 177 | 177 | 177 | 177 |
| PANAS_music_PA | Pearson Correlation | .061 | -.025 | -.020 | .268** | .046 | -.012 | 1 | .118 |
| | Sig. (2-tailed) | .418 | .748 | .792 | .000 | .541 | .873 | | .119 |
| | N | 177 | 164 | 177 | 177 | 177 | 177 | 177 | 177 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| PANAS_music_NA | Pearson Correlation | -.587** | -.090 | .874** | .018 | .838** | .833** | .118 | 1 |
| | Sig. (2-tailed) | .000 | .254 | .000 | .815 | .000 | .000 | .119 | |
| | N | 177 | 164 | 177 | 177 | 177 | 177 | 177 | 177 |

**. Correlation is significant at the 0.01 level (2-tailed).

# Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Affect Average_Drunk | 2.562460765850598 | 1.409899572965685 | 177 |
| NumberofConsequences_Drunk | 4.88 | 2.574 | 163 |
| Wilson_Drunk_A | 3.811299435028249 | 1.252219395917122 | 177 |
| Wilson_Drunk_E | 2.406779661016946 | .544953187951701 | 177 |
| Wilson_Drunk_S | 4.203389830508475 | .974453257386079 | 177 |
| Wilson_Drunk_Sus | 4.289265536723163 | .765705276940860 | 177 |
| PANAS_Drunk_PA | 12.24 | 10.859 | 177 |
| PANAS_Drunk_NA | 25.76 | 14.390 | 177 |

**Correlations**

| | | Affect Average_Drunk | NumberofConsequences_Drunk | Wilson_Drunk_A | Wilson_Drunk_E | Wilson_Drunk_S | Wilson_Drunk_Sus | PANAS_Drunk_PA | PANAS_Drunk_NA |
|---|---|---|---|---|---|---|---|---|---|
| Affect Average_Drunk | Pearson Correlation | 1 | -.044 | -.560** | .169* | -.388** | -.399** | .121 | -.182* |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Sig. (2-tailed) | | .574 | .000 | .025 | .000 | .000 | .108 | .015 |
| | N | 177 | 163 | 177 | 177 | 177 | 177 | 177 | 177 |
| NumberofConsequences_Drunk | Pearson Correlation | -.044 | 1 | .017 | -.129 | .100 | .139 | -.065 | .054 |
| | Sig. (2-tailed) | .574 | | .827 | .102 | .202 | .076 | .410 | .497 |
| | N | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 |
| Wilson_Drunk_A | Pearson Correlation | -.560** | .017 | 1 | .016 | .530** | .520** | .016 | .320** |
| | Sig. (2-tailed) | .000 | .827 | | .833 | .000 | .000 | .832 | .000 |
| | N | 177 | 163 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_Drunk_E | Pearson Correlation | .169* | -.129 | .016 | 1 | -.165* | -.135 | .516** | .171* |
| | Sig. (2-tailed) | .025 | .102 | .833 | | .028 | .074 | .000 | .023 |
| | N | 177 | 163 | 177 | 177 | 177 | 177 | 177 | 177 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Wilson_Drunk_S | Pearson Correlation | -.388** | .100 | .530** | -.165* | 1 | .881** | -.132 | .271** |
| | Sig. (2-tailed) | .000 | .202 | .000 | .028 | | .000 | .081 | .000 |
| | N | 177 | 163 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_Drunk_Sus | Pearson Correlation | -.399** | .139 | .520** | -.135 | .881** | 1 | -.042 | .206** |
| | Sig. (2-tailed) | .000 | .076 | .000 | .074 | .000 | | .581 | .006 |
| | N | 177 | 163 | 177 | 177 | 177 | 177 | 177 | 177 |
| PANAS_Drunk_PA | Pearson Correlation | .121 | -.065 | .016 | .516** | -.132 | -.042 | 1 | .107 |
| | Sig. (2-tailed) | .108 | .410 | .832 | .000 | .081 | .581 | | .158 |
| | N | 177 | 163 | 177 | 177 | 177 | 177 | 177 | 177 |
| PANAS_Drunk_NA | Pearson Correlation | -.182* | .054 | .320** | .171* | .271** | .206** | .107 | 1 |
| | Sig. (2-tailed) | .015 | .497 | .000 | .023 | .000 | .006 | .158 | |

| N | 177 | 163 | 177 | 177 | 177 | 177 | 177 | 177 |
|---|---|---|---|---|---|---|---|---|

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

## Q.2 Probability x Severity Items

# Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Calc_PxS_Average | 1.339406779661017 | .708157421073844 | 177 |
| Number of Consequences_Calc | 1.97 | 1.290 | 165 |
| Wilson_Calc_A | 1.288135593220339 | .747363109789113 | 177 |
| Wilson_Calc_E | 3.308851224105461 | .679815964837581 | 177 |
| Wilson_Calc_S | 1.333333333333333 | .832575412909738 | 177 |
| Wilson_Calc_Sus | 1.378531073446328 | .823098421704868 | 177 |
| PANAS_Calc_PA | 20.20 | 13.328 | 177 |
| PANAS_Calc_NA | 6.35 | 10.622 | 177 |
| Trust_Calc | 5.790153349475381 | 1.005670327683470 | 177 |
| Distrust_Calc | 1.516384180790960 | 1.227438403091862 | 177 |

**Correlations**

| | | Calc_PxS_Average | Number of Consequences_Calc | Wilson_Calc_A | Wilson_Calc_E | Wilson_Calc_S | Wilson_Calc_Sus | PANAS_Calc_PA | PANAS_Calc_NA | Trust_Calc | Distrust_Calc |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calc_PxS_Average | Pearson Correlation | 1 | -.075 | .717** | .053 | .771** | .727** | .307** | .714** | -.210** | .755** |
| | Sig. (2-tailed) | | .337 | .000 | .485 | .000 | .000 | .000 | .000 | .005 | .000 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | 177 | 165 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Number of Consequences_Calc | Pearson Correlation | -.075 | 1 | -.139 | .112 | -.131 | -.129 | .019 | -.104 | -.060 | -.135 |
| | Sig. (2-tailed) | .337 | | .076 | .153 | .094 | .100 | .806 | .183 | .442 | .084 |
| | N | 165 | 165 | 165 | 165 | 165 | 165 | 165 | 165 | 165 | 165 |
| Wilson_Calc_A | Pearson Correlation | .717** | -.139 | 1 | .100 | .923** | .937** | .361** | .881** | -.291** | .934** |
| | Sig. (2-tailed) | .000 | .076 | | .183 | .000 | .000 | .000 | .000 | .000 | .000 |
| | N | 177 | 165 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_Calc_E | Pearson Correlation | .053 | .112 | .100 | 1 | .068 | .084 | .295** | .026 | .131 | .031 |
| | Sig. (2-tailed) | .485 | .153 | .183 | | .368 | .264 | .000 | .728 | .081 | .685 |
| | N | 177 | 165 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_Calc_S | Pearson Correlation | .771** | -.131 | .923** | .068 | 1 | .903** | .361** | .874** | -.281** | .926** |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sig. (2-tailed) | .000 | .094 | .000 | .368 | | .000 | .000 | .000 | .000 | .000 |
| | N | 177 | 165 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_Calc_Sus | Pearson Correlation | .727** | -.129 | .937** | .084 | .903** | 1 | .338** | .857** | -.265** | .899** |
| | Sig. (2-tailed) | .000 | .100 | .000 | .264 | .000 | | .000 | .000 | .000 | .000 |
| | N | 177 | 165 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| PANAS_Calc_PA | Pearson Correlation | .307** | .019 | .361** | .295** | .361** | .338** | 1 | .371** | -.012 | .375** |
| | Sig. (2-tailed) | .000 | .806 | .000 | .000 | .000 | .000 | | .000 | .875 | .000 |
| | N | 177 | 165 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| PANAS_Calc_NA | Pearson Correlation | .714** | -.104 | .881** | .026 | .874** | .857** | .371** | 1 | -.253** | .886** |
| | Sig. (2-tailed) | .000 | .183 | .000 | .728 | .000 | .000 | .000 | | .001 | .000 |
| | N | 177 | 165 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Trust_Calc | Pearson Correlation | -.210** | -.060 | -.291** | .131 | -.281** | -.265** | -.012 | -.253** | 1 | -.275** |
| | Sig. (2-tailed) | .005 | .442 | .000 | .081 | .000 | .000 | .875 | .001 | | .000 |
| | N | 177 | 165 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Distrust_Calc | Pearson Correlation | .755** | -.135 | .934** | .031 | .926** | .899** | .375** | .886** | -.275** | 1 |
| | Sig. (2-tailed) | .000 | .084 | .000 | .685 | .000 | .000 | .000 | .000 | .000 | |
| | N | 177 | 165 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |

**. Correlation is significant at the 0.01 level (2-tailed).

## Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| PxS_Ecig_Average | 3.106991525423728 | 1.118878399785839 | 177 |
| Number of Consequences_Ecig | 3.53 | 1.742 | 172 |
| Wilson_Ecig_A | 3.123163841807910 | 1.312862565179156 | 177 |
| Wilson_Ecig_E | 2.538606403013180 | .623546646683375 | 177 |
| Wilson_Ecig_S | 3.303201506591337 | 1.301842534659328 | 177 |
| Wilson_Ecig_Sus | 3.601129943502825 | 1.145246534622219 | 177 |
| PANAS_Ecig_PA | 14.53 | 11.376 | 177 |
| PANAS_Ecig_NA | 19.32 | 13.841 | 177 |
| Trust_Ecig | 2.349475383373688 | 1.391472009950336 | 177 |
| Distrust_Ecig | 4.524293785310731 | 1.823809600439240 | 177 |

**Correlations**

| | | PxS_Ecig_Average | Number of Consequences_Ecig | Wilson_Ecig_A | Wilson_Ecig_E | Wilson_Ecig_S | Wilson_Ecig_Sus | PANAS_Ecig_PA | PANAS_Ecig_NA | Trust_Ecig | Distrust_Ecig |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PxS_Ecig_Average | Pearson Correlation | 1 | .027 | .640** | -.153* | .716** | .712** | -.169* | .401** | -.374** | .611** |
| | Sig. (2-tailed) | | .723 | .000 | .043 | .000 | .000 | .024 | .000 | .000 | .000 |
| | N | 177 | 172 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Number of Consequences_Ecig | Pearson Correlation | .027 | 1 | .087 | -.193* | .107 | .152* | -.160* | .006 | -.210** | .042 |
| | Sig. (2-tailed) | .723 | | .257 | .011 | .162 | .047 | .036 | .938 | .006 | .582 |
| | N | 172 | 172 | 172 | 172 | 172 | 172 | 172 | 172 | 172 | 172 |
| Wilson_Ecig_A | Pearson Correlation | .640** | .087 | 1 | -.056 | .810** | .755** | -.140 | .503** | -.318** | .633** |
| | Sig. (2-tailed) | .000 | .257 | | .462 | .000 | .000 | .063 | .000 | .000 | .000 |
| | N | 177 | 172 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Wilson_Ecig_E | Pearson Correlation | -.153* | -.193* | -.056 | 1 | -.013 | -.087 | .518** | .205** | .668** | -.099 |
| | Sig. (2-tailed) | .043 | .011 | .462 | | .868 | .248 | .000 | .006 | .000 | .191 |
| | N | 177 | 172 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_Ecig_S | Pearson Correlation | .716** | .107 | .810** | -.013 | 1 | .871** | -.114 | .493** | -.310** | .657** |
| | Sig. (2-tailed) | .000 | .162 | .000 | .868 | | .000 | .131 | .000 | .000 | .000 |
| | N | 177 | 172 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_Ecig_Sus | Pearson Correlation | .712** | .152* | .755** | -.087 | .871** | 1 | -.132 | .472** | -.407** | .676** |
| | Sig. (2-tailed) | .000 | .047 | .000 | .248 | .000 | | .079 | .000 | .000 | .000 |
| | N | 177 | 172 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| PANAS_Ecig_PA | Pearson Correlation | -.169* | -.160* | -.140 | .518** | -.114 | -.132 | 1 | .114 | .524** | -.116 |
| | Sig. (2-tailed) | .024 | .036 | .063 | .000 | .131 | .079 | | .131 | .000 | .125 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | 177 | 172 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| PANAS_Ecig_NA | Pearson Correlation | .401** | .006 | .503** | .205** | .493** | .472** | .114 | 1 | .062 | .469** |
| | Sig. (2-tailed) | .000 | .938 | .000 | .006 | .000 | .000 | .131 | | .416 | .000 |
| | N | 177 | 172 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Trust_Ecig | Pearson Correlation | -.374** | -.210** | -.318** | .668** | -.310** | -.407** | .524** | .062 | 1 | -.296** |
| | Sig. (2-tailed) | .000 | .006 | .000 | .000 | .000 | .000 | .000 | .416 | | .000 |
| | N | 177 | 172 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| Distrust_Ecig | Pearson Correlation | .611** | .042 | .633** | -.099 | .657** | .676** | -.116 | .469** | -.296** | 1 |
| | Sig. (2-tailed) | .000 | .582 | .000 | .191 | .000 | .000 | .125 | .000 | .000 | |
| | N | 177 | 172 | 177 | 177 | 177 | 177 | 177 | 177 | 177 | 177 |

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

## Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| PxS Music Average | 1.365411173885750 | .664899668026434 | 177 |
| Number of Consequences_Music | 2.46 | 1.637 | 164 |
| Wilson_music_A | 1.352542372881356 | .794302709972298 | 177 |
| Wilson_music_E | 3.576271186440677 | .663335927191259 | 177 |
| Wilson_music_S | 1.433145009416196 | .837538610410619 | 177 |
| Wilson_music_Sus | 1.419209039548023 | .852718544586348 | 177 |
| PANAS_music_PA | 29.77 | 13.108 | 177 |
| PANAS_music_NA | 6.49 | 11.147 | 177 |

**Correlations**

| | | PxS Music Average | Number of Consequences_Music | Wilson_music_A | Wilson_music_E | Wilson_music_S | Wilson_music_Sus | PANAS_music_PA | PANAS_music_NA |
|---|---|---|---|---|---|---|---|---|---|
| PxS Music Average | Pearson Correlation | 1 | .033 | .733** | -.038 | .709** | .698** | .091 | .742** |
| | Sig. (2-tailed) | | .676 | .000 | .614 | .000 | .000 | .226 | .000 |
| | N | 177 | 164 | 177 | 177 | 177 | 177 | 177 | 177 |
| Number of Consequences_Music | Pearson Correlation | .033 | 1 | .002 | .140 | -.018 | .044 | -.025 | -.090 |
| | Sig. (2-tailed) | .676 | | .984 | .074 | .823 | .573 | .748 | .254 |
| | N | 164 | 164 | 164 | 164 | 164 | 164 | 164 | 164 |
| Wilson_music_A | Pearson Correlation | .733** | .002 | 1 | -.056 | .890** | .904** | -.020 | .874** |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Sig. (2-tailed) | .000 | .984 | | .462 | .000 | .000 | .792 | .000 |
| | N | 177 | 164 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_music_E | Pearson Correlation | -.038 | .140 | -.056 | 1 | .061 | -.024 | .268** | .018 |
| | Sig. (2-tailed) | .614 | .074 | .462 | | .423 | .747 | .000 | .815 |
| | N | 177 | 164 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_music_S | Pearson Correlation | .709** | -.018 | .890** | .061 | 1 | .880** | .046 | .838** |
| | Sig. (2-tailed) | .000 | .823 | .000 | .423 | | .000 | .541 | .000 |
| | N | 177 | 164 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_music_Sus | Pearson Correlation | .698** | .044 | .904** | -.024 | .880** | 1 | -.012 | .833** |
| | Sig. (2-tailed) | .000 | .573 | .000 | .747 | .000 | | .873 | .000 |
| | N | 177 | 164 | 177 | 177 | 177 | 177 | 177 | 177 |
| PANAS_music_PA | Pearson Correlation | .091 | -.025 | -.020 | .268** | .046 | -.012 | 1 | .118 |
| | Sig. (2-tailed) | .226 | .748 | .792 | .000 | .541 | .873 | | .119 |
| | N | 177 | 164 | 177 | 177 | 177 | 177 | 177 | 177 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| PANAS_music_NA | Pearson Correlation | .742** | -.090 | .874** | .018 | .838** | .833** | .118 | 1 |
| | Sig. (2-tailed) | .000 | .254 | .000 | .815 | .000 | .000 | .119 | |
| | N | 177 | 164 | 177 | 177 | 177 | 177 | 177 | 177 |

**. Correlation is significant at the 0.01 level (2-tailed).

## Correlations

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| PxS Drunk Average | 3.681638418079095 | 1.012993496060621 | 177 |
| NumberofConsequences_Drunk | 4.88 | 2.574 | 163 |
| Wilson_Drunk_A | 3.811299435028249 | 1.252219395917122 | 177 |
| Wilson_Drunk_E | 2.406779661016946 | .544953187951701 | 177 |
| Wilson_Drunk_S | 4.203389830508475 | .974453257386079 | 177 |
| Wilson_Drunk_Sus | 4.289265536723163 | .765705276940860 | 177 |
| PANAS_Drunk_PA | 12.24 | 10.859 | 177 |
| PANAS_Drunk_NA | 25.76 | 14.390 | 177 |

**Correlations**

| | PxS Drunk Average | NumberofConsequences_Drunk | Wilson_Drunk_A | Wilson_Drunk_E | Wilson_Drunk_S | Wilson_Drunk_Sus | PANAS_Drunk_PA | PANAS_Drunk_NA |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| PxS Drunk Average | Pearson Correlation | 1 | -.076 | .455** | -.025 | .502** | .477** | -.061 | .133 |
| | Sig. (2-tailed) | | .338 | .000 | .746 | .000 | .000 | .421 | .078 |
| | N | 177 | 163 | 177 | 177 | 177 | 177 | 177 | 177 |
| NumberofConsequences_Drunk | Pearson Correlation | -.076 | 1 | .017 | -.129 | .100 | .139 | -.065 | .054 |
| | Sig. (2-tailed) | .338 | | .827 | .102 | .202 | .076 | .410 | .497 |
| | N | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 |
| Wilson_Drunk_A | Pearson Correlation | .455** | .017 | 1 | .016 | .530** | .520** | .016 | .320** |
| | Sig. (2-tailed) | .000 | .827 | | .833 | .000 | .000 | .832 | .000 |
| | N | 177 | 163 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_Drunk_E | Pearson Correlation | -.025 | -.129 | .016 | 1 | -.165* | -.135 | .516** | .171* |
| | Sig. (2-tailed) | .746 | .102 | .833 | | .028 | .074 | .000 | .023 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | N | 177 | 163 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_Drunk_S | Pearson Correlation | .502** | .100 | .530** | -.165* | 1 | .881** | -.132 | .271** |
| | Sig. (2-tailed) | .000 | .202 | .000 | .028 | | .000 | .081 | .000 |
| | N | 177 | 163 | 177 | 177 | 177 | 177 | 177 | 177 |
| Wilson_Drunk_Sus | Pearson Correlation | .477** | .139 | .520** | -.135 | .881** | 1 | -.042 | .206** |
| | Sig. (2-tailed) | .000 | .076 | .000 | .074 | .000 | | .581 | .006 |
| | N | 177 | 163 | 177 | 177 | 177 | 177 | 177 | 177 |
| PANAS_Drunk_PA | Pearson Correlation | -.061 | -.065 | .016 | .516** | -.132 | -.042 | 1 | .107 |
| | Sig. (2-tailed) | .421 | .410 | .832 | .000 | .081 | .581 | | .158 |
| | N | 177 | 163 | 177 | 177 | 177 | 177 | 177 | 177 |
| PANAS_Drunk_NA | Pearson Correlation | .133 | .054 | .320** | .171* | .271** | .206** | .107 | 1 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Sig. (2-tailed) | .078 | .497 | .000 | .023 | .000 | .006 | .158 | |
| | N | 177 | 163 | 177 | 177 | 177 | 177 | 177 | 177 |

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

# APPENDIX S. CONSTRUCT VALIDITY T-TEST OUPUT

## T-Test

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | Affect Average_Calc | 6.111255975662754 | 177 | 1.326450966395603 | .099702160023177 |
| | Affect Average_Ecig | 3.270056497175142 | 177 | 1.504456069472204 | .113081842892353 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | Affect Average_Calc & Affect Average_Ecig | 177 | -.031 | .679 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | 95% Confidence Interval of the Difference | | | | |
| | | Mean | Std. Deviation | Std. Error Mean | Lower | Upper | | | |
| Pair 1 | Affect Average_Calc - Affect Average_Ecig | 2.841199478487612 | 2.036583370499975 | .153078980113292 | 2.539092847199123 | 3.143306109776101 | 18.560 | 176 | .000 |

## T-Test

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | PxS_Calc_Average | 1.339406779661017 | 177 | .708157421073843 | .053228371275088 |

| | | | | | |
|---|---|---|---|---|---|
| | PxS_Ecig_Average | 3.106991525423728 | 177 | 1.118878399785839 | .084100050501719 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | PxS_Calc_Average & PxS_Ecig_Average | 177 | .052 | .492 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | PxS_Calc_Average - PxS_Ecig_Average | -1.767584745762711 | 1.292644287552065 | .097161094435906 | -1.959335506779086 | -1.575833984746336 | -18.192 | 176 | .000 |

## T-Test

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | Affect Average_Music | 5.959787304752410 | 177 | 1.241519537878488 | .093318322933427 |
| | Affect Average_Drunk | 2.562460765850598 | 177 | 1.409899572965685 | .105974541390254 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | Affect Average_Music & Affect Average_Drunk | 177 | -.237 | .002 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference Lower | Upper | | | |
| Pair 1 | Affect Average_Music - Affect Average_Drunk | 3.397326538901813 | 2.087437341879888 | .156901398672880 | 3.087676233141772 | 3.706976844661853 | 21.653 | 176 | .000 |

## T-Test

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | PxS_Music_Average | 1.365411173885750 | 177 | .664899668026434 | .049976919449247 |
| | PxS_Drunk_Total | 3.681638418079094 | 177 | 1.012993496060621 | .076141253770667 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | PxS_Music_Average & PxS_Drunk_Total | 177 | -.183 | .015 |

**Paired Samples Test**

| | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|
| | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference Lower | Upper | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Pair 1 | PxS_Music_Average - PxS_Drunk_Total | -2.316227244193344 | 1.309493626259286 | .098427568287281 | -2.510477434906539 | -2.121977053480149 | -23.532 | 176 | .000 |

# APPENDIX T. PERCEIVED RELATIONAL RISK: SHORT SCALE

## T.1 Affect Items

Rated on level of agreement with each statement: (1-Strongly disagree, 2-Disagree, 3-Somewhat disagree, 4-Neither agree nor disagree, 5-Somewhat agree, 6-Agree, 7-Strongly agree).

1. I am very concerned about using this technology.
2. I am very fearful of using this technology.
3. I am very anxious about using this technology.
4. I am very concerned about the effects that using this technology could have on people close to me (e.g., friends and family).
5. I am very concerned about the effects that using this technology could have on the general public.
6. Thinking about using this technology makes me feel very frightened.
7. Thinking about using this technology does not worry me at all.
8. I have no concerns about the effects that using this technology could have on me.
9. I am calm when thinking about using this technology.
10. I do not feel any distress when thinking about using this technology.

## T.2 Probability x Severity Items

For the next set of questions, you are going to be reporting your beliefs about the probability and severity of outcomes from using a specific technology.

You have a total of 10 points to divide among the five items based on how likely you think they are to occur. The total number of points for each set of questions must equal 10.

Higher numbers mean a higher expected probability that type of outcome will occur.

Lower numbers mean a lower expected probability that type of outcome will occur.

A 0 means that that outcome is not expected at all.

When thinking about using _____, please rate your expected probability for the following outcomes:

1.. Disastrous

- A completely disastrous outcome will result from using this technology.
- A considerably disastrous outcome will result from using this technology.
- A moderately disastrous outcome will result from using this technology.
- A slightly disastrous outcome will result from using this technology.
- There will be no disastrous outcome from using this technology.

2. Tragic

- Using this technology will result in extremely tragic outcomes.
- Using this technology will result in very tragic outcomes.
- Using this technology will result in somewhat tragic outcomes.
- Using this technology will result in slightly tragic outcomes.
- Using this technology will not result in any tragic outcomes at all.

3. Severe

- Using this technology will result in extremely severe outcomes.
- Using this technology will result in very severe outcomes.
- Using this technology will result in somewhat severe outcomes.
- Using this technology will result in slightly severe outcomes.
- Using this technology will not result in any severe outcomes.

4. Awful

- There will be completely awful outcomes as a result of using this technology.
- There will very awful outcomes as a result of using this technology.
- There will be somewhat awful outcomes as a result of using this technology.
- There will be slightly awful outcomes as a result of using this technology.
- There will be no awful outcomes at all as a result of using this technology.

5. Unpleasant

- Using this technology will result in extremely unpleasant results.
- Using this technology will result in very unpleasant results.
- Using this technology will result in somewhat unpleasant results.
- Using this technology will results in slightly unpleasant results.
- Using this technology will not result in any unpleasant results.

### T.3 Domain Items

When someone is evaluating the risks of using ____, what order would you recommend they consider the following domains of risk specific to that technology?

Rank from **most important (1)** to consider to **least important (9)** to consider.

- Physical Harm Risk (the technology could hurt or kill someone)
- Financial Risk (the technology could cause someone to lose money or cost a lot)
- Performance Risk (the technology could function improperly or not completing the tasks could cause other negative outcomes)
- Social Risk (the technology could influence how other people think of the person using it)
- Psychological Risk (the technology could cause emotional or psychological harm or not align with how the user thinks of themselves)
- Time Loss Risk (the technology could be late, delayed, inefficient, or require extra effort)
- Ethical Risk (the technology could be immoral)
- Privacy Risk (the technology could expose the user or their environment)
- Security Risk (the technology could be vulnerable to misuse or is a threat to safety)

For this next question, you will be evaluating if there are domains from the ranking that do not need to be considered at all. You will evaluate the domains in the order you previously ranked them. If there are domains that do not need to be considered after a certain rank, you will provide a cut-off after which items do not need to be considered by selecting the last domain in the rank ordering that needs to be considered. If all domains are important to consider, please select the final item (9).

You rank ordered the following list of items from most important (1) to least important (9) to consider when evaluating the risk of **using x.**

Please select the last domain which you think someone should consider **when using x.**

For example, maybe no domains after the 4th ranked domain matter so you would select the 4th ranked domain; or, in cases where all domains could be important to consider, select the last item.

- Physical Harm Risk (the technology could hurt or kill someone)
- Financial Risk (the technology could cause someone to lose money or cost a lot)
- Performance Risk (the technology could function improperly or not completing the tasks could cause other negative outcomes)
- Social Risk (the technology could influence how other people think of the person using it)
- Psychological Risk (the technology could cause emotional or psychological harm or not align with how the user thinks of themselves)

- Time Loss Risk (the technology could be late, delayed, inefficient, or require extra effort)
- Ethical Risk (the technology could be immoral)
- Privacy Risk (the technology could expose the user or their environment)
- Security Risk (the technology could be vulnerable to misuse or is a threat to safety)

# APPENDIX U. PERCEIVED SITUATIONAL RISK: SHORT SCALE

## U.1 Affect Items

Rated on level of agreement with each statement: (1-Strongly disagree, 2-Disagree, 3-Somewhat disagree, 4-Neither agree nor disagree, 5-Somewhat agree, 6-Agree, 7-Strongly agree).

1. I am very concerned about completing this task or being in this situation.
2. I am very fearful of completing this task or being in this situation.
3. I am very concerned about the effects that completing this task or being in this situation could have on me.
4. I am very concerned about the effects that completing this task or being in this situation could have on people close to me (e.g., friends and family).
5. I am very concerned about the effects that completing this task or being in this situation could have on the general public.
6. Thinking about completing this task or being in this situation does not worry me at all.
7. Completing this task or being in this situation is not threatening to me at all.
8. I am calm when thinking about completing this task or being in this situation.
9. I do not feel any anxiety when thinking about completing this task or being in this situation.
10. I do not feel any distress when thinking about completing this task or being in this situation.

## U.2 Probability x Severity Items

For the next set of questions, you are going to be reporting your beliefs about the probability and severity of outcomes from using a specific technology.

You have a total of 10 points to divide among the five items based on how likely you think they are to occur. The total number of points for each set of questions must equal 10.

Higher numbers mean a higher expected probability that type of outcome will occur.

Lower numbers mean a lower expected probability that type of outcome will occur.

A 0 means that that outcome is not expected at all.

When thinking about using ______, please rate your expected probability for the following outcomes:

1.Catastrophic

- The outcomes of completing this task or being in this situation will be completely catastrophic.
- The outcomes of completing this task or being in this situation will be very catastrophic.
- The outcome of completing this task or being in this situation will be somewhat catastrophic.
- The outcomes of completing this task or being in this situation will be slightly catastrophic.
- The outcomes of completing this task or being in this situation will not at all catastrophic.

2. Disastrous

- A completely disastrous outcome will result from completing this task or being in this situation.
- A considerably disastrous outcome will result from completing this task or being in this situation.
- A moderately disastrous outcome will result from completing this task or being in this situation.
- A slightly disastrous outcome will result from completing this task or being in this situation.
- There will be no disastrous outcome from completing this task or being in this situation.

3. Severe

- Completing this task or being in this situation will result in extremely severe outcomes.
- Completing this task or being in this situation will result in very severe outcomes.
- Completing this task or being in this situation will result in somewhat severe outcomes.
- Completing this task or being in this situation will result in slightly severe outcomes.
- Completing this task or being in this situation will not result in any severe outcomes.

4. Awful
- There will be completely awful outcomes as a result of completing this task or being in this situation.
- There will very awful outcomes as a result of completing this task or being in this situation.
- There will be somewhat awful outcomes as a result of completing this task or being in this situation.
- There will be slightly awful outcomes as a result of completing this task or being in this situation.
- There will be no awful outcomes at all as a result of completing this task or being in this situation.

5. Unpleasant
- Completing this task or being in this situation will result in extremely unpleasant results.
- Completing this task or being in this situation will result in very unpleasant results.
- Completing this task or being in this situation will result in somewhat unpleasant results.
- Completing this task or being in this situation will results in slightly unpleasant results.
- Completing this task or being in this situation will not result in any unpleasant results.

### U.3 Domain Item

When someone is evaluating the risks of doing ____, what order would you recommend they consider the following domains of risk specific to that task or situation?

Rank from **most important (1)** to consider to **least important (9)** to consider.

- Physical Harm Risk (the task or situation could hurt or kill someone)

- Financial Risk (the task or situation could cause someone to lose money or cost a lot)
- Performance Risk (if improperly or not completed the task or situation could cause other negative outcomes)
- Social Risk (the task or situation could influence how other people think of the person doing the task or in the situation)
- Psychological Risk (the task or situation could cause emotional or psychological harm or not align with how the person thinks of themselves)
- Time Loss Risk (the task or situation is inefficient or requires extra effort)
- Ethical Risk (the task or situation could be immoral)
- Privacy Risk (the task or situation could expose the user or their environment)
- Security Risk (the task or situation could be vulnerable to misuse or is a threat to safety)

For this next question, you will be evaluating if there are domains from the ranking that do not need to be considered at all. You will evaluate the domains in the order you previously ranked them. If there are domains that do not need to be considered after a certain rank, you will provide a cut-off after which items do not need to be considered by selecting the last domain in the rank ordering that needs to be considered. If all domains are important to consider, please select the final item (9).

You rank ordered the following list of items from most important (1) to least important (9) to consider when evaluating the risk of **doing x.**

Please select the last domain which you think someone should consider **when doing x.** For example, maybe no domains after the 4th ranked domain matter so you would select the 4th ranked domain; or, in cases where all domains could be important to consider, select the last item

- Physical Harm Risk (the task or situation could hurt or kill someone)
- Financial Risk (the task or situation could cause someone to lose money or cost a lot)
- Performance Risk (if improperly or not completed the task or situation could cause other negative outcomes)
- Social Risk (the task or situation could influence how other people think of the person doing the task or in the situation)
- Psychological Risk (the task or situation could cause emotional or psychological harm or not align with how the person thinks of themselves)
- Time Loss Risk (the task or situation is inefficient or requires extra effort)
- Ethical Risk (the task or situation could be immoral)
- Privacy Risk (the task or situation could expose the user or their environment)
- Security Risk (the task or situation could be vulnerable to misuse or is a threat to safety)

# REFERENCES

Aldas-Manzano, J., Ruiz-Mafe, C., Sanz-Blas, S., & Lassala-Navarré, C. (2011). Internet banking loyalty: evaluating the role of trust, satisfaction, perceived risk and frequency of use. *Service Industries Journal*, *31*(7), 1165–1190. Retrieved from http://10.0.4.56/02642060903433997

Burda, D., & Teuteberg, F. (2014). The role of trust and risk perceptions in cloud archiving — Results from an empirical study. *Journal of High Technology Management Research*, *25*(2), 172–187. Retrieved from http://10.0.3.248/j.hitech.2014.07.008

Chancey, E. T., Bliss, J. P., Yamani, Y., & Handley, H. A. H. (2017). Trust and the Compliance-Reliance Paradigm: The Effects of Risk, Error Bias, and Reliability on Trust and Dependence. *Human Factors*, *59*(3), 333–345. https://doi.org/10.1177/0018720816682648

Chiles, T. H., & McMackin, J. F. (1996). INTEGRATING VARIABLE RISK PREFERENCES. TRUST. AND TRANSACTION COST ECONOMICS. *Academy of Management Review*, *21*(1), 73–99. Retrieved from http://10.0.21.89/AMR.1996.9602161566

Cockrill, A., Goode, M. M. H., & Beetles, A. (2009). The Critical Role of Perceived Risk and Trust in Determining Customer Satisfaction with Automated Banking Channels. *Services Marketing Quarterly*, *30*(2), 174–193. Retrieved from http://10.0.4.56/15332960802619231

Damghanian, H., Zarei, A., & Siahsarani Kojuri, M. A. (2016). Impact of Perceived

Security on Trust, Perceived Risk, and Acceptance of Online Banking in Iran. *Journal of Internet Commerce*, *15*(3), 214–238. Retrieved from http://10.0.4.56/15332861.2016.1191052

Delbufalo, E. (2015). Subjective trust and perceived risk influences on exchange performance in supplier–manufacturer relationships. *Scandinavian Journal of Management*, *31*(1), 84–101. Retrieved from http://10.0.3.248/j.scaman.2014.06.002

Evans, A. M., & Revelle, W. (2008). Survey and behavioral measurements of interpersonal trust. *Journal of Research in Personality*, *42*(6), 1585–1593. https://doi.org/10.1016/j.jrp.2008.07.011

Ezer, N., Fisk, A. D., & Rogers, W. A. (2008). Age-Related Differences in Reliance Behavior Attributable to Costs Within a Human-Decision Aid System. *Human Factors: The Journal of the Human Factors and Ergonomics Society*, *50*(6), 853–863. https://doi.org/10.1518/001872008X375018

Fox-Glassman, K. T., & Weber, E. U. (2016). What makes risk acceptable? Revisiting the 1978 psychological dimensions of perceptions of technological risks. *Journal of Mathematical Psychology*, *75*, 157–169. https://doi.org/10.1016/j.jmp.2016.05.003

George, D., & Mallery, M. (2003). *Using SPSS for Windows step by step: a simple guide and reference*.

Giffin, K. (1967). The Contribution of Studies of Source Credibility To a Theory of Interpersonal Trust in the Communication Process. *Psychological Bulletin*, *68*(2), 104–120. https://doi.org/10.1037/h0024833

Gosling, S. D., Rentfrow, P. J., & Jr., W. b. S. (2003). A very brief measure of the Big-Five personlity domains. *Journal of Research in Personality*, *37*(6), 504–528. https://doi.org/http://dx.doi.org/10.1016/S0092-6566(03)00046-1

Hsin Chang, H., & Wen Chen, S. (2008). The impact of online store environment cues on purchase intention: Trust and perceived risk as a mediator. *Online Information Review*, *32*(6), 818–841. https://doi.org/10.1108/14684520810923953

Jacoby, J., & Kaplan, L. B. (1972). The Components of Perceived Risk. *Sv*, *SV-02*(January 1972), 382–393. Retrieved from http://www.acrwebsite.org/search/view-conference-proceedings.aspx?Id=12016

Jian, J.-Y., Bisantz, A. M., & Drury, C. G. (2000). Foundations for an Empirically Determined Scale of Trust in Automated Systems. *International Journal of Cognitive Ergonomics*, *4*(1), 53–71. https://doi.org/10.1207/S15327566IJCE0401_04

Jian, J.-Y., Bisantz, A. M., Drury, C. G., & Llinas, J. (1996). *United States Air Force Research Laboratory Foundations for an Empirically Determined Scale of Trust in Automated Systems*. (February 1997).

Jin, N. (Paul), Line, N. D., & Merkebu, J. (2016). The Impact of Brand Prestige on Trust, Perceived Risk, Satisfaction, and Loyalty in Upscale Restaurants. *Journal of Hospitality Marketing & Management*, *25*(5), 523–546. Retrieved from http://10.0.4.56/19368623.2015.1063469

Lee, J. D., & See, K. A. (2004). Trust in Automation: Designing for Appropriate Reliance. *Human Factors*, *46*(1), 50–80. https://doi.org/10.1518/hfes.46.1.50.30392

Lewandowsky, S. (2000). The dynamics of trust: Comparing humans to automation What limits working memory capacity? View project Working memory and long-term memory View project. *Article in Journal of Experimental Psychology Applied*. https://doi.org/10.1037/1076-898X.6.2.104

Lu, X., Xie, X., & Xiong, J. (2015). Social trust and risk perception of genetically modified food in urban areas of China: the role of salient value similarity. *Journal of Risk Research*, *18*(2), 199–214. Retrieved from http://10.0.4.56/13669877.2014.889195

Lyons, J. B., & Stokes, C. K. (2012, February 12). Human-human reliance in the context of automation. *Human Factors*, Vol. 54, pp. 112–121. https://doi.org/10.1177/0018720811427034

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An Integrative Model of Organizational Trust. *Academy of Management Review*, *20*(3), 709–734.

Mitzner, T. L., Stuck, R., Hartley, J. Q., Beer, J. M., & Rogers, W. A. (2017). Acceptance of televideo technology by adults aging with a mobility impairment for health and wellness interventions. *Journal of Rehabilitation and Assistive Technologies Engineering*, *4*, 205566831769275. https://doi.org/10.1177/2055668317692755

Mohd Suki, N., & Mohd Suki, N. (2017). Modeling the determinants of consumers' attitudes toward online group buying: Do risks and trusts matters? *Journal of Retailing & Consumer Services*, *36*, 180–188. Retrieved from http://10.0.3.248/j.jretconser.2017.02.002

Nicolaou, A. I., Ibrahim, M., & van Heck, E. (2006). Perceived Information Quality in

Data Exchanges: Effects on Risk, Trust, and Intention to Use. *Information Systems Research*, *17*(4), 986–996. Retrieved from http://10.0.3.248/j.dss.2012.10.024

Nicolaou, A. I., Ibrahim, M., & Van Heck, E. (2013). Information quality, trust, and risk perceptions in electronic data exchanges. *Decision Support Systems*, *54*(2), 986–996. https://doi.org/10.1016/j.dss.2012.10.024

O'connor, B. P. (2000). SPSS and BAS programs for determining the number of components using parallel analysis and Velicer's MAP test. In *Behavior Research Methods, Instruments, & Computers* (Vol. 32). Retrieved from http://flash.lakeheadu.ca/-boconn02/

Pappas, N. (2016). Marketing strategies, perceived risks, and consumer trust in online buying behaviour. *Journal of Retailing & Consumer Services*, *29*, 92–103. Retrieved from http://10.0.3.248/j.jretconser.2015.11.007

Parasuraman, R., & Riley, V. (1997). Humans and Automation: Use, Misuse, Disuse, Abuse. *Human Factors: The Journal of the Human Factors and Ergonomics Society*, *39*(2), 230–253. https://doi.org/10.1518/001872097778543886

Pederson, B. K. M. K., Anderson, K. E., Köslich, S., Weigelin, B. C., & Kuusinen, K. (2018). Simulations and Self-Driving Cars: A Study of Trust and Consequences. *HRI '18 Companion*, *4*(2), 205–206. https://doi.org/10.1145/3173386.3176987

Perkins, L., Miller, J. E., Hashemi, a., & Burns, G. (2010). Designing for Human-Centered Systems: Situational Risk as a Factor of Trust in Automation. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, *54*(25), 2130–2134.

https://doi.org/10.1177/154193121005402502

Rajaonah, B., Tricot, N., Anceaux, F.-O., & Millot, P. (2008). The role of intervening variables in driver–ACC cooperation. *Int. J. Human-Computer Studies*, *66*, 185–197. https://doi.org/10.1016/j.ijhcs.2007.09.002

Rempel, J. K., Holmes, J. G., & Zanna, M. P. (1985). Trust in Close Relationships. *Journal of Personality and Social Psychology*, *49*(1), 95–112. Retrieved from https://www.researchgate.net/profile/John_Holmes9/publication/232554295_Trust_in_close_relationships_J_Pers_Soc_Psychol/links/0046352cdcd5694aee000000/Trust-in-close-relationships-J-Pers-Soc-Psychol.pdf

Riley, V. (1994). A theory of operator reliance on automation. In M. Mouloua & R. Parasuraman (Eds.), *Human performance in automated systems : Recent research and trends* (pp. 8–14). Hillsdale, NJ: Erlbaum.

Riley, V. (1996). Operator Reliance on Automation: Theory and Data. In R. Parasuraman & M. Mouloua (Eds.), *Automation and Human Performance : Theory and applications* (pp. 19–35). Hillsdale, NJ: Erlbaum.

Roberts, J. S., Laughlin, J. E., & Wedell, D. H. (1999). Validity issues in the Likert and Thurstone approaches to attitude measurement. *Educational and Psychological Measurement*, *59*(2), 211–233. https://doi.org/10.1177/00131649921969811

Robinette, P. (2015). *Developing Robots That Impact Human-Robot Trust in Emergency Evacuations*. (December), 130. Retrieved from https://smartech.gatech.edu/handle/1853/54415

Roselius, T. (1971). Consumer Rankings of Risk Reduction Methods. *Journal of Marketing*, *35*(1), 56. https://doi.org/10.2307/1250565

Satterfield, K., Baldwin, C., de Visser, E., & Shaw, T. (2017). The Influence of Risky Conditions in Trust in Autonomous Systems. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, *61*(1), 324–328. https://doi.org/10.1177/1541931213601562

Slade, E. L., Dwivedi, Y. K., Piercy, N. C., & Williams, M. D. (2015). Modeling Consumers' Adoption Intentions of Remote Mobile Payments in the United Kingdom: Extending UTAUT with Innovativeness, Risk, and Trust. *Psychology & Marketing*, *32*(8), 860–873. Retrieved from http://10.0.3.234/mar.20823

Slovic, P., Finucane, M. L., Peters, E., & MacGregor, D. G. (2004). Risk as Analysis and Risk as Feelings: Some Thoughts about Affect, Reason, Risk, and Rationality. *Risk Analysis*, *24*(2), 311–322. https://doi.org/10.1111/j.0272-4332.2004.00433.x

Slovic, P., Fischhoff, B., & Lichtenstein, S. (1980). Facts and Fears: Understanding Perceived Risk. In *Societal Risk Assessment* (pp. 181–216). https://doi.org/10.1007/978-1-4899-0445-4_9

Stuck, Rachel E., Tomlinson, B. J., & Walker, B. N. (2020). The Importance of Incorporating Risk into Human-Automation Trust. In *Submitted for Publication*.

Stuck, Rachel E., & Walker, B. N. (2019). Risk Perceptions of Common Technologies. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, *63*(1), 1316–1320. https://doi.org/10.1177/1071181319631128

Stuck, Rachel Elizabeth, Holthausen, B. E., & Walker, B. N. (2020). The Role of Risk in Human-Robot Trust. In *Trust in Human-Robot Interaction: Research and applications*.

Terpstra, T. (2011). Emotions, Trust, and Perceived Risk: Affective and Cognitive Routes to Flood Preparedness Behavior. *Risk Analysis: An International Journal*, *31*(10), 1658–1675. Retrieved from http://10.0.4.87/j.1539-6924.2011.01616.x

Tortosa-Edo, V., López-Navarro, M. A., Llorens-Monzonís, J., & Rodríguez-Artola, R. M. (2014). The antecedent role of personal environmental values in the relationships among trust in companies, information processing and risk perception. *Journal of Risk Research*, *17*(8), 1019–1035. Retrieved from http://10.0.4.56/13669877.2013.841726

Vainio, A., Paloniemi, R., & Varho, V. (2017). Weighing the Risks of Nuclear Energy and Climate Change: Trust in Different Information Sources, Perceived Risks, and Willingness to Pay for Alternatives to Nuclear Power. *Risk Analysis: An International Journal*, *37*(3), 557–569. Retrieved from http://10.0.4.87/risa.12640

Wang, E. S.-T., & Lin, R.-L. (2017). Perceived quality factors of location-based apps on trust, perceived privacy risk, and continuous usage intention. *Behaviour & Information Technology*, *36*(1), 2–10. Retrieved from http://10.0.4.56/0144929X.2016.1143033

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and Validation of Brief Measures of Positive and Negative Affect: The PANAS Scales. In *Journal of Personality and Social Psychology* (Vol. 54). Retrieved from https://psycnet.apa.org/journals/psp/54/6/1063.html?uid=1988-31508-001

Weber, E. U., Blais, A. E. A.-R. R., & Betz, N. E. (2002). A domain-specific risk-attitude scale: measuring risk perceptions and risk behaviors. *Journal of Behavioral Decision Making*, *15*(4), 263–290. https://doi.org/10.1002/bdm.414

Weber, E. U., & Milliman, R. A. (1997). Perceived Risk Attitudes: Relating Risk Perception to Risky Choice. *Management Science*, *43*(2), 123–144. https://doi.org/10.1287/mnsc.43.2.123

Wildavsky, A., & Dake, K. (1990). Theories of risk perception: Who fears what and why? *Daedalus*, *119*(4), 41–60. https://doi.org/10.2307/20025337

Wilson, R. S., Zwickle, A., & Walpole, H. (2019). Developing a Broadly Applicable Measure of Risk Perception. *Risk Analysis*, *39*(4), 777–791. https://doi.org/10.1111/risa.13207